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ABSTRACT

Sources of marketing information and services in the broad and rapidly growing field of data communications are listed in this guide. Most of the entries are concerned with communications and electronics equipment and services but their products and services are produced in a number of industries. The organizations are listed under the following categories: market research, trade and professional associations, trade publications, U. S. Government publications and data sources, major future users of data communications, foreign production and trade statistics, and product codes. The name, address, and a brief description is given for each entry. (SJ)

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DATA COMMUNICATIONS

MARKET INFORMATION SOURCES

U.S. DEPARTMENT OF COMMERCE
Peter G. Peterson, Secretary
James T. Lynn, Under Secretary
Andrew E. Gibson, Assistant Secretary-Designate
for Domestic and International Business

Hudson B. Drake
Deputy Assistant Secretary
and Director
Bureau of Domestic Commerce

JULY 1972

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Foreword

This publication is intended as a guide to sources of marketing information and services in the broad and rapidly growing field of data communications. Most of the entries are concerned with communications and electronics equipment and services but their products and services are produced in a number of industries.

While the Bureau of Domestic Commerce has listed all of the market studies, associations, and services in the specialized data communications field of which it is presently aware, there is no assurance that these listings are complete. Since the rapid growth and technological development of this new service will require periodic updating of this compilation, changes or omissions should be brought to the attention of the Communications-Electronics Division for inclusion in future revisions of this publication.

This publication has been prepared by Randal K. Young of the Communications-Electronics Division of the Office of Business Research and Analysis, Bureau of Domestic Commerce.

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Chapter 1

Market Research Studies and Services

Audits and Surveys, Inc.

One Park Avenue
New York, New York 10016
(212) 689-9400

Designs and conducts custom surveys for clients for market research and other areas utilizing its 250 field interviewers and experienced professional staff. Has conducted studies of the Data Communications Market, 1971-75 and Interstate Private Line Teleprinter Market for clients. Not available to the public but techniques, and staff available to conduct similar surveys for other clients.

Auerbach Publishers, Inc.

121 North Broad Street
Philadelphia, Pennsylvania 19107
(215) 491-8200

Data Communications Reports—Cost $325. A complete looseleaf reference service on data communications equipment, systems design, and common carrier facilities. Three volumes updated bi-monthly. Comparison charts itemize more than 1,000 different devices including communications terminals and processing equipment, multiplexers, data sets, teletypewriter, voice response, alphanumeric displays, terminals, and facsimile equipment.

Battelle Memorial Institute Columbus Laboratories

505 King Avenue
Columbus, Ohio 43201
(614) 299-3151

Battelle, one of the world's largest not-for-profit research institutions, specializes in custom-designed studies using capabilities such as its Communication Research Panel, BASIS-70—Computer Based Information Systems—and other resources. The Panel was formed in 1970 and brings together staff members with research experience and capabilities related to electronic communications. Specific data communications capabilities include: Traffic theory and engineering; transmission engineering; switching theory, design, and engineering; systems design, communications terminals, teleprinters, CRT devices, modems, and lineprinters.

Also, facsimile design and utilization; optical character recognition research; computer hardware and software design; communication economics investigation related to corporate and market planning; diversification studies; technological forecasting; en-

gineering and production economics research; communication utility regulation analysis; and human factors research.

Basis-70—Computer-Based Information Systems. Cost: depends on utilization rates. Has a computerized information storage and retrieval service. Users can couple their teleprinter or high-speed CRT terminals to a time-shared computer housed at Battelle to search and retrieve data from Battelle's extensive data banks. Users can also store and retrieve their own data with security safeguard. Conversational modes are provided and system has several different search capabilities.

Typical data communications studies (not available to the public) include:

- *A Preliminary Survey and Analysis of Communications as an Opportunity* (May 1969)
- *A Survey of Communications as an Opportunity Area* (April 1970)
- *Identification of Possible Diversification Opportunities in the Area of Information Exchange* (June 1971)
- *A Preliminary Evaluation of Potential Markets for Optical Transmission Systems* (November 1970)
- *Review of Technical and Marketing Information on Facsimile and Video Record Playback Devices* (July 1971)

Booz, Allen & Hamilton, Inc.

245 Park Avenue
New York, New York 10017
(212) 967-1900

The Data Processing Industry (1967)—Not available to the public. An analysis of the growth and composition of the U.S. information processing industry and, in particular, the use of communications facilities for data processing. Describes the significant computer systems used by major industries, the expected future developments in electronic data processing, and identification of present methods of maintaining information privacy and security.

Data Communications Requirement (1967).—Not available to the public. Analyzes data communications systems directly connected to computers (on-line), and data transmission systems between noncomputer terminals (off-line). Contains information on the current status of voice and message communications equipment; projected future data communications activities at division and corporate levels; quantitative and qualitative criteria for assessing data communications activities and programs; and the types and estimated costs of data terminal equipment and transmission facilities.

The Domestic Data Transmission Market in the 1970's (1970).—Not available to the public. This study was designed to assist in developing a marketing strategy for a microwave digital data transmission network. It focused on seven major economic segments including manufacturing, retailing, finance, and information service sectors.

The study identified major data transmission applications within each of these segments, developed conceptual overviews for each application, and projected market demand in terms of number of calls, hold times, number of terminals, and other user requirements.

This company has done several additional proprietary data processing/data communications studies for industry and government clients utilizing its established data base.

Coenen and Company

280 Park Avenue
New York, New York 10017
(212) 661-4550

Data Communications and the Specialized Common Carriers—Cost $500. A 170-page analysis of the market for communications equipment and services from 1970-80: Data communications trends, major segments and suppliers, analysis of potential new common carriers, regulatory atmosphere, present microwave transmission market and suppliers, future microwave transmission markets and transmission requirements, requirements and market forecasts for long-haul microwave communications, switching and terminal equipment, short-haul transmission equipment and communications consulting markets.

Creative Strategies Incorporated

1032 Ewell
Palo Alto, California 94303
(415) 964-8900

Investment Planning Service Reports—Cost $300 each, annual subscription $2,400. A monthly report series covering high technology industries.

Each report contains a discussion of the industry, forecasts of the market and its main segments, descriptions of important technological aspects, comparison of available products, and a description of each main competitor. In-depth analysis of each industry based on interview techniques. Company also does custom proprietary studies. Reports in the data communications area include:

Interactive CRT Terminal Industry (November 1970)
Facsimile Industry (January 1971)
Data Communications: Modems/Multiplexers (May 1971)

Datapro Research Corporation

2204 Walnut Street
Philadelphia, Pennsylvania 19103
(215) 564-3600

Datapro 70 Service—Annual subscription $390, renewal $230. A looseleaf reference service, updated through monthly supplements, on characteristics and capabilities of EDP hardware and software. Over 300 reports in six sections: Computers, Peripherals, Communications, Software, Suppliers, and Feature Reports. Coverage includes communications terminals, data recorders, display units, modems, and other interface equipment. For example, the 24-page report on modems compares the transmission characteristics, and communications facility required, Bell compatibility, terminal and line interfaces, operational features, packaging, power supply, prices and availability of the models of 40 manufacturers.

Dittberner Associates, Inc.

4900 Auburn Avenue
Bethesda, Maryland 20014
(202) 652-8350

Project Master—Cost averages $12,000. (Price determined by firm size.) A study of functional data terminal requirements for each of more than 500 transaction types in 66 U.S. industries. This 12-volume study defines both the functional specifications and quantitative market demand for present and anticipated computer communications terminal uses. Study contains detailed product forecasts enabling manufacturers to estimate potential market shares.

Project Switch—Cost averages $25,000. (Price determined by firm size.) A research effort to define the functional specifications and quantitative market requirements for network-interconnected telecommunications switching systems throughout the United States, over the next decade. It will provide definitive market and product requirements data for network interconnected telecommunication switching equipment for sale by end-users.

The 1971 PBX Fact Book—Annual subscription $375 for the first year, and $250 renewal. A comprehensive compilation of statistics, specifications, features, and pricing on essentially every PBX system available in the United States. Material is presented in a standardized format covering manufacturers, distributors and installers/maintainers of PBX equipment. Periodic updating and supplements are provided.

The company has done a number of proprietary studies in the data communications equipment and service area. It has a proprietary data bank, including statistical data and market projections on the following classes of equipment:

- Computer controlled PBX and Multiplexers
- Digital Transmission and Switching Systems
- Data Concentrators and Pre-Processors
- Video Image Storage and Transmission Systems
- Advance Local Distribution Systems
- Buffered and Intelligent Data Terminals

Frost and Sullivan, Inc.

106 Fulton Street
New York, New York 10038
(212) 233-1080

The Specialized Communications Common Carrier Market—Cost $345 (January 1971). A 171-page analysis of the new industry created by demand for data communications and changes in regulations opening this field to other common carriers. Estimates $1 billion will be spent to build systems during the next 5 years and millions more to tie into systems. Detailed projections, 1772-78, for 25 products, and services, including: Transmitters, multiplexers, terminals, modems, switching, CATV, IR, consulting, software.

Computer Data Terminals—Cost $345 (April 1971). The market for teletypewriters, alphanumeric data displays, graphic data displays, remote batch, audio response, and other terminals. Financial, manufacturing, government, retailing, transportation reservation, . medical care, information, and other

end uses. Projections by terminal type and by end use through 1980.

Data Communications — Cost $245 (June 1970). Projects market will increase tenfold during next 6 years and data traffic could reach 50 percent of total telephone networks traffic by 1979. Devices include: data modems and data phones, concentrators and communication controllers, multiplexers and computer controlled data switching equipment. Terminals not included. Reviews modulation and interface. Forecasts modems, reliability, costs, size, signal processing, standardization, and self-equalizing.

Optical Character Recognition (OCR) Equipment—Cost $345 (May 1971). 210-page technical review and market forecast, covers optical character readers (OCR), optical bar and marks readers (OMR), magnetic ink character readers (MICR) and related business forms. Value of installed equipment will grow from $300 million in 1970 to $2 billion by 1980. Forecasts through 1980 by type of equipment and by end use. OCR forecast as a segment of the computer peripherals market.

Telephone Interconnect—Cost $395 (September 1971). New industry created by 1968 FCC edict. Sales estimated to grow to $1 billion by 1980. Projections for 20 products and services, including PABX, answering devices, conference, decorator and special purpose phones, data devices, modems, multiplexers, concentrators, access arrangements, video devices such as FAX machines and video phones, test equipment, and consulting.

IMA, Incorporated

15233 Ventura Blvd.
Sherman Oaks, California 91403
(213) 783-4461

Prepares custom-designed market research studies for individual clients derived from a statistical data bank on data communications equipment and services. Recent studies, not available to the public, include:

Date	*Subject*
1970	Character Printers
1970	Facsimile Transmitters/Receivers
1970	Plotting Data Terminals
1970	Thermal Printers
1969	Acoustic Data Coupler
1969	International Data Transmission Services
1969	Mobile Teleprinters
1967	Data Transmission Services for the U.S. Market

While the Bureau of Domestic Commerce has listed all of the market studies and services in the data communications field of which it is currently aware, there is no assurance that the list is complete. A complete list of market research firms can be obtained from *Bradford's Directory of Marketing Research Agencies and Management Consultants*, P. O. Box 276, Fairfax, Virginia, (703) 560-7484; 13th edition, 1971-72 biennial, Cost: $23.50.

Information and Communication Applications, Inc.

Robert A. Mallet, President
8121 Georgia Avenue
Silver Spring, Maryland 20910
(301) 589-8490

ICA provides product evaluation, market analyses, and communications studies. Client services include EVALUATION ICA SURV A. Cost $5,000 to $10,000. A client tailored market analysis of customer and competition's equipment for specific digital communication hardware and systems. Customers include computer/communications, peripheral and terminal manufacturers. ICA SURV B. Cost $10,000 to $20,000. Adds to ICA SURV A for analysis of the equipment and/or services with recommendations for additional features and capabilities. All complete ICA SURV A and B projects are customer confidential.

Other plans and a brochure discussing completed projects may be obtained from the company on request.

International Data Corporation

60 Austin Street
Newtonville, Massachusetts 02160
(617) 969-4020

EDP Industry Corporate Planning Service—Cost $10,000 a year. A continuing research service that provides sponsors with an industry forecast and data base, detailed industry studies, planning semi-

nars, staff conferences, and an unlimited telephone inquiry service. Each industry study includes market forecasts, industry trends, user attitudes, expenditure patterns, product economies, competitive strategies, technological outlook, and the European market. A communications industry study has been recently completed on data communications services, interconnection equipment, and data communications in Europe.

United States Computer Installation Data File—Cost: Initial $12,000; Renewal $10,000 (last release June 1971). Contains a detailed description of over 35,000 computer installations in the United States, company descriptions, mainframes, peripherals including data communications equipment, and software.

International Computer Installation Data File—Cost: Initial $12,000; Renewal $10,000 (last release May 1971). Detailed description of over 28,000 computer installations outside the United States with same detail as the U.S. file.

The Independent Peripheral Equipment Market Place—Cost $8,000 for written report and magnetic tape data base (September 1970). Contains estimates of independent industry size for major products, competitive environment, market attitudes towards independent suppliers, user selection criteria, and detailed market analyses.

EDP Industry Report (The Gray Sheet)—Cost $75 a year (issued semimonthly). Review and evaluations of business, technical, and marketing developments in the industry. A major subject is featured in each issue, such as a new product line, corporate merger activity, pricing policy, and other market trends. Annual review and forecast issue in March.

Keydata Corporation

108 Walter Street
Watertown, Massachusetts 02172
(617) 924-1200

Interactive Graphics Technology and Market Analysis—Cost $975 (June 1970). Analysis of the state-of-the-art of interactive graphics hardware and software. Describes vendors, users, devices, and applications. Applications market analysis and price performance characteristics. Contains marketing projections for the 1970's.

Computer Display Review—Cost $250 annually, $2,000 with personnel telephone consulting services. Revision issued every 4 months. Looseleaf service. Describes developments in display hardware, software and applications. Covers information display history and applications, hardware engineering concepts, software techniques and display terminal characteristics and analysis. Consulting services provide answers to specific questions within 24 hours.

Arthur D. Little, Inc.

Acorn Park
Cambridge, Massachusetts 02140
(617) 864-5570

Service to Management and Investors Reports and Letters—Annual subscription $5,000. This program provides authoritative reports on technological and market developments and briefings on specific subjects important to management. The service includes a personal inquiry privilege which permits clients to consult with staff by phone, letter, or visit on matters of specific interest.

Recent reports or letters relating to data communications include:

- The Computer Industry 1970-75 (April 1971)
- Implications of Regulatory Development in U.S. Telecommunications (June 1969)
- The Market for Computer Peripherals and Terminal Devices (October 1969)
- Implications of the FCC's MCI Decision (August 1969)
- UCC's Proposed Data Transmission Network (December 1969)
- Data Communications Equipment (January 1971)
- Facsimile Market Outlook (August 1970)
- Data Communications Equipment (January 1971)
- The FCC Decision on Special Service Common Carriers (August 1969)
- The Market for Data Communications in the U.S. (September 1966)
- Hospital Information Systems in the 1970's (March 1970)

Multiclient Studies—The Electro-Optics Industry—Cost $6,000. Three studies on effect of current and projected electro-optic technology on military, industrial and consumer markets during the next 10 years.

World-Wide Telecommunications 1970-1980—Cost $15,000 (August 1971). A large multiclient

study sponsored by communications common carriers, manufacturers and users from the United States, Canada, Europe and Japan. Study includes: Projections of major markets in units and dollars; how more important communications systems operators plan, budget and procure telecommunications; governmental policies and regulations; world-wide technological developments; technical and cost description of facilities and services; equipment and service cost projections. Specific markets covered include: Transmission facilities, switching equipment, concentrators and communications processors, multiplex equipment, modems (data sets), displays, facsimile and other terminal devices.

The company also does custom-designed market and other studies for individual clients utilizing its world-wide staff and data bank. Proprietary studies in data communications, not available to the public, include:

- Microwave Systems in Africa, the Middle East and Europe
- The PBX Equipment Market
- The PABX Equipment Market in Europe
- The Market for Computers and Communications Services
- Private Line Communications Services
- Point-to-Point Digital Communications Services
- Data Transmission Services for 1969-74
- FCC Common Carrier Application
- ODTM–Telecommunications Policy

Management Sciences Associates

Suite 301—Penn-Glenn Building
Glenside, Pennsylvania 19038
(215) 885-0610

The Computer Peripheral Equipment Market 1970-1978—July 1971. Not available to the public. Contains analyses of applications, trends and forecasts of markets and technologies for 20 equipment categories including punched-cards/tapes; keyboard to tape, cassette or disk; optical and magnetic ink character readers; drum, tape, disk and cassette drives; core, semiconductor, plated wire and special memories; computer output microfilm, plotters, and printers; modems/couplers and interface equipment (118 pages).

Industrial Digital Computer Interface Equipment—October 1970. Not available to the public. Forecasts growth trends for industrial digital data systems as related to overall computer systems hardware growth. Projects markets for peripheral interface functions linking input sensors to central processors/loggers. Identifies technological factors and parameters for interface module line including marketing/sales action recommendations.

A Depth Study of the Signal Conditioner Market—June 1970. Not available to the public. Contains quantitative forecasts to 1974 in six principal demand segments, e.g., process industries, production test/inspection, ground support and pollution for three classes of signal conditioner peripheral equipment. Assess OEM and end-user market needs by major industries. Develops product planning criteria for market acceptance.

Digital Computer Memories 1968-75—December 1970. Not available to the public. Contains market and techno-economic forecasts for 15 new and existing memory technologies, overall and by end-use markets—business machines, industrial systems, data communications computers, calculators, peripherals and terminals.

Predicasts, Inc.

200 University Circle Research Center
11001 Cedar Avenue
Cleveland, Ohio 44106
(216) 795-3000

Data Communication Equipment—Cost $250 (March 1970). This study analyzes and gives historical and projected data (to 1978) on various data communications equipment. Covered are terminals, modems, preprocessors, multiplexers, and utility equipment. Terminal usage is projected by occupation, industry and type.

Computer Peripheral Equipment Study—Cost $250 (May 1969). This report presents general computer market trends, structure of the computer and peripheral equipment industries, and detailed analyses and forecasts of the various peripheral equipment product groups as to input devices, output devices, magnetic tape transports, memory devices, remote terminals, and data transmission equipment. Sales are projected from 1960 through 1978.

Literature Data Bases—Cost $250 (April 1971). Defines and analyzes the Literature Data Base Industry. Historical and projected revenues for 1975 and 1980 are presented by market—engineering and scientific, legal and medical, business and social—by media—printed, magnetic tape, other media—

and by institution—government, non-profit, for-profit. The study provides detailed industry structure for each of the nine sectors.

Microforms—Cost $250 (August 1969). This study analyzes historical and projected markets for microform equipment (cameras, processing and output devices), supplies (rolls, cartridges, aperture cards, jackets and fiche), and services. Discusses industry structure, comparative economics, and emphasizes computer applications.

Predicasts—Updated quarterly. Cost $250 annually. Abstracts all forecasts and good market data from articles appearing in over 500 trade journals, business and financial publications, key newspapers, government reports, and special studies. Coverage ranges from thousands of detailed products through industries to the entire economy. Included are hundreds of growth product forecasts. Abstracts are condensed to one line then systematically arranged to facilitate data comparison, and rapid retrieval.

Predicasts, Inc., monitors more than 1,000 periodicals and studies on a continuing basis, and publishes a dozen information publications which contain close to one half million descriptive entries classified by subject, product, company and country. Some other publications include: *F&S Index of Corporations and Industries*, which is published weekly, monthly, quarterly and annually and covers domestic information; the monthly and annual *F&S Index International* reports on foreign activity, world-costs; published eight times a year (4-regional issues and 4-product issues); abstracts all foreign forecasts and arranges them by product and country.

Quantum Science Corporation

245 Park Avenue
New York, New York 10017
(212) 986-4410

MAPTEK Communications Strategy Program—Cost $5,000, $7,000 with consulting privileges. A continuing, multiclient research program utilizing the computerized MAPTEK Data Base of the technological industries, which is structured in an input/output format, and utilizes extensive field interviews. Subscribers receive Strategy Studies which are written analyses of technology, markets and competitive strategies with specific action recommendations, a full day in-house interactive strategy conference, group client conference, a total of 50 Quantum Views reports on areas of current interest, telephone, conference, and letter consultation privileges. Studies include market forecasts for 1970-75, analysis of the integrated business systems market, transmission demand, transmission networks, interface equipment, connections to networks and factors generating communications demands.

Network Information Services—Cost $10,800 (June 1971). This multiclient study forecasts the market for all services provided over remote computing terminals and evaluates the competitive environment in the time-sharing industry. The four volume study (nearly 1,000 pages in total), forecasts markets from 1970-75 and provides detailed applications, industry and end market forecasts of strategies to enter the many interactive and remote batch service markets.

Dedicated Information Systems—Cost $12,000 (1970). A multiclient study pinpointing the opportunities in remote computing systems operated for or by a single user, with particular emphasis on facilities management markets, terminals, central processors and computer services. All of the markets are forecast for each of 14 industrial sectors of the U.S. economy for 1970-75, with great application emphasis.

Data Network Equipment—Cost $4,900 (March 1972). A multiclient study forecasting the markets and applications specifications of multiplexors, concentrators and preprocessors, with particular emphasis on their utilization in remote computing systems over the next 5 years. This study is highly product oriented and defines in depth the industry-by-industry requirements of data network equipment and the special applications oriented features that are being included by manufacturers in such equipment.

Modem Equipment—Cost $4,900 (March 1972). A multiclient study focusing on the modern segment of the data network and remote computing market and analyzing in depth the competitive aspects of stand-alone modems with modems built into terminals and other remote computing equipment. The band width, error rates, cost and other features of modems are analyzed in detail with particular emphasis on product specifications and industry applications of the hardware. All of the markets are forecast for each of the different modem types through 1975.

Other Studies—The company also provides continuing subscription services in computer services, computer equipment and component fields, carries out multiclient studies and also conducts special cus-

tom designed market, technology, diversification and investment analyses for individual clients.

Robertson and Associates, Inc.

744 Broad Street
Newark, New Jersey 07102
(201) 622-3135

High Growth Opportunities Reports—Cost $275. Projects the size and growth of markets during the next 5 to 10 years, major users, applications and functions, names and addresses of several hundred largest quantity users, product specifications and prices of major manufacturers, trends and earnings, type sales force and advertising programs, and technological trends. Contains recommendations on improving product specifications and marketing techniques—sales, advertising, and distribution—to increase sales and profits. Some of these are:

Modems	204 pages
Multiplexers	206 pages
Remote Data Terminals	186 pages
Alphanumeric CRT Terminals and Displays	143 pages
Graphic CRT Terminals and Displays	279 pages
Optical Character Reader	169 pages
Lasers	105 pages
Computer Software and Time Sharing	158 pages

The company conducts larger custom studies for individual clients. Typical proprietary studies, not available to the public include:

CRT Monitors
Communications Transmitters
Communications Receivers
Transceivers

Spindeltop Research

Post Office Box 481
Iron Works Road
Lexington, Kentucky 40501
(606) 252-5535

Communications Common Carrier Facilities—Potential markets for special services common carriers between all major U.S. cities and intermediate metropolitan areas. Field surveys were conducted in major cities, estimates of potential markets for proposed routes were obtained, and economic viabilities of proposed carrier companies were assessed. Not available to the public but the company has an established data base and proven techniques for other proprietary data communication studies.

Standard and Poor's Industry Surveys

345 Hudson Street
New York, New York 10014
(212) 924-6400

Industry Surveys—Cost, annual subscription $40 each. Issued annually, updated three times a year. Discusses trends and projections, potential markets, and companies. Provides a comparative analysis of companies, including sales records, profit margins, market actions of company stock, and other information in the following three broad areas relating to data communications: Electronics (May 1971); Office Equipment (September 1971); Telephone (May 1971).

Stanford Research Institute

Menlo Park
California 94025
(415) 326-6200

Long Range Planning Service—Cost: Initial 2-year international contract, $5,500 per year; Initial two-regional contract, $4,000 per year. LRPS reports alert executives worldwide to significant changes in the business environment, and to their impact on industrial concerns; and provide information on advanced corporate planning and management techniques. The LRPS Reports summarize both the current status and the future outlook for specific developments in markets and technology.

Services to over 500 participants include: Copies of reports and executive summaries, client inquiry services, staff consultation privileges, microfilm backup, continuing survey of literature and participation in client seminars. Reports relevant to data communications include:

Multiple Access Data Processing	October 1967
Information Terminals	May 1969
World Electronics to 1980	December 1969
Digitally Accessed Information Storage	February 1970
Graphic Communications Technology	May 1970
Management Information Systems	October 1970
Lasers	December 1970
Microwave Technology	March 1971
Facsimile	May 1971

World Electronic Industries—New Opportunities for Growth and Diversification in the 1970s. Cost $17,500 (April 1972). A multiclient study including computer, communications, and other electronics products and markets. Markets, technology, industry structure, and competition are described for the 1970-80 period for many countries including the United States, Japan, and 14 countries of Western Europe. Fourteen written volumes, final oral presentation and prepaid consulting. Products include computer central processors, data transmission equipment, data terminals, data storage and origination equipment, and other computer equipment.

The Growing Market for Minicomputers— Cost $8,500 (December 1971). Four volumes, 1,000 pages. This multiclient study predicts dramatic changes in the future use of minicomputers in time-sharing systems and decentralized data processing networks as well as control and preprocessing devices in communications systems. The study considers many aspects of minicomputer use in both business and nonbusiness applications in Europe, Japan, and the United States, including technology and product trends, supplier trends, impact on peripheral equipment, relationship with larger computers, and communications systems.

Business Opportunities in Cable Television— Cost $7,500 (September 1971). This three-volume multiclient study describes the expected economic and technological environment of the U.S. CATV industry through 1981. Includes analysis of consumer demand, likely regulatory developments, system financial characteristics, expected technological developments, equipment market projections, likely developments in CATV programming, demand and costs for various broadband home communications services and prospective municipal government and commercial uses of a broadband communications system.

Facsimile Markets—Cost $7,500 (December 1971). This multiclient study assesses current and potential applications of the facsimile medium in terms of functional fit, technological feasibility, economic advantage relative to competitive media, and developments necessary to achieve various levels of U.S. market expansion through 1980. Research has been scoped to cover the broad interests of a group of United States, European, and Japanese clients. Fee covers detailed written report in two volumes and individual consulting.

SRI also conducts custom studies for individual clients utilizing its established data base.

Chapter 2

Trade and Professional Associations

American Federation of Information Processing Societies (AFIPS)

210 Summit Avenue
Montvale, New Jersey 07645
(201) 391-9810

AFIPS is a federation of professional societies concerned with computers and information processing. It is to a large degree oriented toward management, professional, and technical problems rather than manufacturing.

Addresses and information on the four societies below are described individually elsewhere in this chapter.

The Association for Computing Machinery, Inc.
The Institute of Electrical & Electronics Engineers, Inc.
The American Society for Information Science
Society for Information Display

Other constituent societies:

Simulation Councils, Inc.
Post Office Box 2228
LaJolla, California 92038
(714) 459-3888

Association for Computational Linguistics
c/o Professor Harry H. Josselson
Slavic Department
Wayne State University
Detroit, Michigan 48202
(313) 577-4796

Special Libraries Association
235 Park Avenue South
New York, New York 10003
(212) 777-8136

The American Institute of Certified Public Accountants
666 Fifth Avenue
New York, New York 10019
(212) 581-8440

Society for Industrial and Applied Mathematics
33 South 17th Street
Philadelphia, Pennsylvania 19103
(215) 564-2929

American Institute of Aeronautics and Astronautics
New York, New York 10019
1290 Sixth Avenue
(212) 581-4300

Instrument Society of America
530 William Penn Place
Pittsburgh, Pennsylvania 15129
(412) 281-3171

American Statistical Association
810 18th Street, N.W.
Washington, D.C.
(202) 393-3253

AFIPS holds semi-annual joint computer conferences. These include exhibitions of companies connected with the data processing field as well as many lectures and seminars.

AFIPS Press has a free list of the proceedings of these conferences containing the formal papers that were presented, as well as its other publications. Available to members and non-members.

Constituent societies also have many other publications available.

Armed Forces Communications and Electronics Association (AFCEA)

1725 Eye Street, N.W.
Washington, D. C. 20006
(202) 296-3033

The association endeavors to maintain and improve the cooperation between the Armed Forces and industry in communications and related fields. Publisher of *Signal* Magazine, monthly, $7.50 per year to non-members. Articles on new techniques, equipment and user requirements in the fields of communications and electronics. Holds annual convention in Washington, D.C.

American Management Association, Inc. (AMA)

Attn: Management Information Service
135 West 50th Street
New York, New York 10020
(212) 586-8100

AMA offers a wide range of seminars, short courses and publications on data communications, EDP systems and applications of computers to business problems.

Guide to Management Development—$2.50 several times a year. Catalogue of scheduled seminars, courses and training programs.

Bookshelf Catalog—Free annually. Catalogue of books, periodicals, and instruction material produced by the AMA.

American National Standards Institute, Inc. (ANSI)

1430 Broadway
New York, New York 10018
(212) 868-1220

The American National Standards Institute is the coordinating organization for the United States voluntary standards system. It is a federation of the Nation's leading professional and technical societies, trade associations, labor organizations, consumer groups, manufacturers and retailers engaged in the development and promulgation of voluntary standards of all types. ANSI is the clearinghouse for some 200 major organizations developing standards.

It also represents the United States in work with the International Organization for Standards and provides support for the U.S. National Committee of the International Electrotechnical Commission.

The X3 standards series deal with information processing and office equipment. A list describing these and other standards and information about ANSI is available upon request. Information on the Product Certification program is also available from ANSI.

American Society for Information Science (ASIS)

1140 Connecticut Avenue, N. W.
Washington, D. C. 20036
(202) 659-3644

ASIS is concerned with the generation, collection, organization, interpretation, storage, retrieval, dissemination, transformation, and use of information.

ASIS has twelve Special Interest Groups (SIG's) which give scope and focus to the diverse interests of its members.

(SIG/AH) Arts and Humanities
(SIG/ALP) Automated Language Processing
(SIG/BSS) Behavioral and Social Sciences
(SIG/BC) Biological and Chemical Information Systems

(SIG/CR) Classification Research
(SIG/CBE) Costs, Budgeting, and Economics
(SIG/ES) Education for Information Sciences
(SIG/IAC) Information Analysis Centers
(SIG/LA) Library Automation and Networks
(SIG/NPM) Non-Print Media
(SIG/RT) Reprographic Technology
(SIG/SDI) Selective Dissemination of Information

Holds annual meetings, chapter meetings, seminars and workshops.

Publications:

Journal of the ASIS. Bimonthly magazine. $35 per year to non-members.

Handbook & Directory. Annual book, $25 to non-members.

Information Science Abstracts. Bimonthly. $40 to non-members.

Proceedings of the A.S.I.S. Annual Meeting. $11.

List describing these and other publications available from ASIS upon request.

Associated Public-Safety Communications Officers, Inc. (APCO)

J. Rhett McMillian, Jr.
Executive Secretary
P. O. Box 669
New Smyrna Beach, Florida 32069
(904) 428-8700

APCO is a safety radio user group and is composed of administrators and communications technical, operational and command personnel.

The purpose of APCO is to foster the development and progress of Public Safety Communications and to promote greater correlation of the communications activities of town, cities, counties, states, and federal agencies.

Publications:

APCO Bulletin—Magazine Monthly. $3 to non-members. Contains feature articles such as "Digital Communications for Police Radio," "Land Mobile, FCC and Spectrum Allocations." Regular departments such Questions and Answers, Technical Forum.

The Public Safety Communications Standards: Frequency Corrination Manual; 1971. $2.50. *Operating Procedure Manual,* 1970. $1.25.

Prepared for Law Enforcement Assistance Administration of U.S. Department of Justice, *Police Telecommunications Systems.* (See chapter on "U.S. Government Information Sources" for details and price.)

Association for Computing Machinery (ACM)

1133 Avenue of the Americas
New York, New York 10036
(212) 265-6300

An organization of individual professionals interested in advancing the sciences and arts of information processing including, but not restricted to the study, design, development, construction and application of modern machinery, computing techniques and appropriate languages for general information processing, storage, retrieval, and processing of data of all kinds and for the automatic control and simulation of processes.

Special Interest Groups/Special Interest Committees (as of Dec. 1970) are:

(SIGACT)	Automata and Computability Theory
(SIGART)	Artificial Intelligence
(SIGBDP)	Business Data Processing
(SIGBIO)	Biomedical Computing
(SIGCOMM)	Data Communication
(SIGCOSIM)	Computer Systems, Installation Management
(SIGCPR)	Computer Personnel Research
(SIGCSE)	Computer Science Education
(SIGCUE)	Computer Uses in Education
(SIGDA)	Design Automation
(SIGGRAPH)	Computer Graphics
(SIGFIDET)	File Description and Translation
(SIGIR)	Information Retrieval
(SIGLASH)	Language Analysis and Studies in the Humanities
(SIGMAP)	Mathematical Programming
(SIGMICRO)	Microprogramming
(SIGNUM)	Numerical Mathematics
(SIGOPS)	Operating Systems
(SIGPLAN)	Programming Languages
(SIGREAL)	Real Time Processing
(SIGSAM)	Symbolic and Algebraic Manipulation
(SIGSIM)	Simulation

(SIGSOC) Social and Behavioral Science Computing
(SIGSPAC) Urban Data Systems, Planning, Architecture and Civil Engineering
(SIGUCC) University Computing Centers
(SIGCAPH) Computers and the Physically Handicapped

Publications:

Communications of the ACM. Monthly. Free to members, others $25. Activities of the ACM and its "Special Interest Groups (SIG's), articles of industry and world news.

ACM Computing Surveys. Quarterly. $25 to non-members per year.

Journal of the ACM. Quarterly. $25 to non-members per year.

Many of the Special Interest Groups have their own publications.

(SIGCOMM) Data Communication—Publisher of *Computer Communications Review*. Quarterly. Non-ACM members may join SIGCOMM and receive the quarterly review for $8 per year.

Association for Education Communications and Technology (AECT)

1201 16th Street, N. W.
Washington, D. C. 20036
(202) 833-4180

Formerly the Department of Audiovisual Instruction of the National Education Association.

Audiovisually oriented but has expanded to include computerized information systems and computer assisted instruction. Their publications are carrying articles on "Machine-Readable Cataloging," "A Random-Accessible, Audiovisual Information Terminal," and "A Technological Communications Theory."

Publications:

Audiovisual Instruction. Monthly. $12 to non-members. Official AECT magazine with late news of AV developments, reviews of teaching materials, equipment, and articles.

AV Communications Review. Quarterly. $13 per year to non-members. Devoted to communications, technology, and the teaching-learning process.

A free catalog of these and other publications is available.

Association for Educational Data Systems (AEDS)

1201 16th Street, N. W.
Washington, D. C. 20036
(202) 833-4100

An association whose objectives include:

To promote and encourage appropriate use of electronic data processing and computing equipment and techniques for the improvement of both education and administration.

To cooperate with manufacturers, distributors, and operators of educational data processing equipment and suppliers in establishing and maintaining proper technical standards, and in meeting new needs for specialized devices and systems.

AEDS holds an annual conference and workshop seminars.

Publications:

AEDS Monitor. Monthly. $15 per year to non-members. A monthly publication devoted to timely articles exploring current development and directions in educational data systems and computer technology.

AEDS Journal. Quarterly. $10 per year to non-members. A quarterly publication with an emphasis on the comprehensive presentation of papers illustrating latest developments in application of computer technology to all areas of education and administration.

Special publications: Published irregularly on specific topics.

Association for Systems Management (ASM)

24587 Bagley Road
Cleveland, Ohio 44138
(216) 243-6900

An association of data processing systems managers. The association is concerned with all phases of data processing including programming, forms, equipment and data communications. To assist in this endeavor it has six technical departments. These departments publish reports and hold workshops.

DATA COMMUNICATIONS

Reports latest development and innovations in data transmission devices. The department scope of activity also includes microwave, laser and radio transmitting techniques and new and improved peripheral equipment associated with data communications.

DATA PROCESSING—HARDWARE

Reports on various models, and types of computers, peripheral equipment, scanning devices, video display units, input and output devices, as well as new techniques in control panels and control panel wiring, and leasing-buying benefits.

MANAGEMENT INFORMATION SYSTEMS

Directs its attention to the basic fundamentals used to create a management information system. In addition to the computer applications, reports on filing systems, microfilm and microfische techniques.

Other departments are: Data Processing—Software; Organization Planning; and, Written Communications.

Plans call for additional departments in future. Holds annual conventions.

Publications:

Journal of Systems Management. Monthly magazine. $15 to non-members per year.

Association and General Industry News. In-depth articles on various topics submitted by members and outside organizations.

This chapter lists many of the associations that are either entirely connected with Data Communications or have subdivisions in this area. All organizations offer information or publications to non-members. In many cases not all services may be obtained by non-members. Membership qualifications and cost information may be obtained from the associations.

Further names and addresses of associations may be found in *National Trade and Professional Associations of the U.S.*, Columbia Books, Inc., 917 15th Street, N.W., Washington, D.C. 20005, and *Encyclopedia of Associations*, Gale Research Company, Book Tower, Detroit, Michigan 48226.

All prices are for U.S. delivery. Prices subject to change.

Business Equipment Manufacturer's Association (BEMA)

1828 L Street, N. W.
Washington, D. C. 20036
(202) 466-2288

An association of manufacturers of conventional business machines, computers and data processing equipment, and supplies. The association develops market information for its members, conducts seminars and conferences, and acts as a liaison between the industry and government. BEMA is the official sponsor, under the American National Standards Institute, Inc. (ANSI), for the establishment of domestic and international standards in the electronic computer data processing equipment and business machine fields.

For publications, papers or information contact the "Reference Service," Standards Department.

Computer Peripheral Manufacturers Association (CPMA)

1629 K Street, N. W.
Suite 5015
Washington, D. C. 20006
(202) 296-1737

The Computer Peripheral Manufacturers Association is an organization set up by companies to help foster the growth of the independent sector of the computer industry.

Its objectives are to promote the value of independent-supplier products, to encourage objective buying practices, to study and propose solutions to industry-wide problems such as standards, interface needs, world trade issues, pricing practices and competitive factors.

Data Processing Management Association (DPMA)

505 Busse Highway
Park Ridge, Illinois 60068
(312) 825-8124

Purpose of the association, with its 260 local chapters, is to engage in education and research activities

focused on the development of effective programs. DPMA provides information for understanding of the principles and methods of data processing, as it relates to hardware, software and management techniques. Holds Annual International Data Processing Conference and Business Exposition at which papers on the latest developments of EDP are submitted at seminars. Local Chapters hold monthly meetings at which there are presentations on various EDP subjects.

Publication:

Data Management. Don Young, editor. Official publication of the Data Processing Management Association. Monthly. $5 per year to non-members. Contains association news as well as articles on data collection, data communications, information storage and retrieval, optical scanning, computer programming and operation, systems analysis, operations research, and management.

List of books and other publications available on request.

Electronic Industries Association (EIA)

2001 Eye Street, N. W.
Washington, D. C. 20006
(202) 659-2200

The Electronic Industries Association is the national trade organization for electronic manufacturers. Representing the full spectrum of manufacturers in the electronic industries, its members range from manufacturers of the smallest electronic part to corporations that design and produce the most complex systems used in defense, space and industry.

The Association is organized into seven operating divisions: Consumer Electronics Group; Communications and Industrial Electronics Division; Distributor Products Division; Government Products Division; Solid State Products Division; Parts Division; and, Tube Division.

The principal staff executives of the Association are:

President: V. J. Adduci.

Staff Vice President, Consumer Electronics Group: Jack Wayman.

Staff Vice President, Communications and Industrial Electronics Division: John Sodolski.

Staff Vice President, Distribtuor Products Division and Parts Division: Tyler Nourse.

Staff Vice President, Government Products Division: Jean A. Caffiaux.

Staff Vice President, Solid State Products Division and Tube Division, James J. Conway.

EIA holds three annual membership conferences a year—In March, Washington, D.C.—In June, Chicago—and, in October, Los Angeles or San Francisco. During these conferences, seminars are held which are open to all interested parties. They usually deal with subjects of timely and significant interest to the electronics industry. Information about these conferences is published in the EIA Weekly Report to the Electronic Industries and the trade press.

The Communications and Industrial Electronic Division has the following subsections dealing with Data Communications: Communication Terminals and Interfaces; Fixed Point to Point (Microwave); Broad Band Communications; Telephone Equipment and Satellite Communications.

Publications:

EIA Weekly Report to the Electronic Industries. $35 per year to non-members. Association news and articles of interest to the electronic industry.

Electronic Market Data Book 1972. Yearly book. $15 non-members. Reports shipments in various segments of the electronic industry with comments and trends, i.e. Communications and Industrial Products—computing and data processing equipment (peripheral equipment, data communications, facsimile).

Industrial Electronics Bulletin No. 8. Reviews EIA standards RS232-C; Interface Between Data Terminal Equipment and Data Communications Equipment, Employing Serial Binary Interchange. Price $5.10.

Publications Index. A complete listing of publications, marketing reports, and engineering standards. No charge.

Directory of EIA Officers, Committees, Members (1971-1972). A listing of the association officers, committee structure, and member companies. Published in loose-leaf style so that it can be easily updated. 100 pages. $5.

Institute of Electrical and Electronic Engineers (IEEE)

345 47th Street
New York, New York 10017
(212) 752-6800

The IEEE is made up of individual engineers. It holds an annual convention and exhibition in New York City. Special interest groups hold seminars, meetings and workshops.

Publications:

IEEE Spectrum. Monthly. Available to non-members, price on request.

Technical articles for electrical and electronic engineers and professionals, abstracts from other IEEE and non-IEEE publications, general news and membership activities.

IEEE Proceedings. Monthly. Available to non-members, price on request.

Tutorial. Review papers, special issues devoted to subjects of singular importance, research papers in areas not covered by group publications, and technical letters.

Also published over 30 transactions for IEEE groups with specialized interests. Some of those relating to data communications are:

Antennas and Propagation.
Communications Technology.
Computers.
Engineering Management.
Information Theory.
Microwave Theory, Techniques, Systems, Man and Cybernetics.

Information and prices on these and other IEEE publications available from The Institute of Electrical and Electronic Engineers in New York City.

International Business Forms Industries/PIA (IBFI)

North Lynn Street
Arlington, Virginia 22209
(703) 527-6000

IBFI, a section of the Printing Industries of America, through its Forms Standardization Committee is developing standards for forms that will be adaptable to ADP processing. Hardware which is required to read standardized format and size documents is less costly to produce and would be cost effective on a wider range of applications. Holds annual meetings.

Publications:

Data Communications and Business Systems. $12. August 1971. Contains the works of 25 leading authorities who presented formal papers at IBFI's Third International Forum. These presentations served to: introduce tools and techniques; outline implications, problems, and benefits incurred by application of the technology in the U.S. to date; provide comparative views of the state of data communications elsewhere in the world; and, offers a glance at what the future will bring. Seen as useful for the executive, manager, or engineer.

Beyond OCR . . . Data Communications and Forms. $25. May 1970. A study which reviews the state of the art of Data Communications, gives its impact on forms now and in the future, and includes a forecast of the growth of data communications.

The Future of the Manifold Business Forms Industry. $55. March 1971. This in-depth industry forecast developed by the Battelle Memorial Institute in cooperation with IBFI member companies and the entire business forms industry interfaces new technologies with industry trends.

The Present and Future Use of Business Forms in Commercial Banking. $15. April 1969. Covers current applications of business forms and the systems behind them; reviews new systems involving the functional application of forms within commercial banks; forecasts several potential changes in paper work procedures involving forms.

OCR and the Years Ahead. $15. July 1969. A full length book containing the writings of 41 authorities concerning the use, production, and applications of OCR now and in the future.

EDP-Forms Technical Roundup. Monthly. $20 per year. International newsletter of hard-copy input-output, document handling, and related equipment, and its forms requirements. This newsletter reports and

evaluates changes as they occur in order to provide complete technical information to members.

Description of these and other publications available from IBFI.

International Communications Association (ICA)

Martin L. Fullerton, Secretary
1501 Alcoa Building
Pittsburgh, Pennsylvania 15219
(412) 553-2901

Association's purpose is to exchange experience and information on communications problems to mutual benefit of individual members and to the companies they represent and to encourage communication technological developments and research.

Holds annual conventions—open to non-members.

International Foundation for Telemetering (IFT)

19230 Ventura Boulevard
Suite 6
Woodland Hills, California 91364
(213) 884-9568

An association of technical/professional individuals. Its purpose is to advance the theory and practice of telemetering and to promote unity and effectiveness.

IFT co-sponsors a Telemetering Standards Coordination Committee which serves to receive, coordinate and disseminate telemetry standards information to users, manufacturers and others who are active in telemetry.

IFT sponsors annual International Telemetering Conference, U.S.A. each fall alternating between the East and West coasts.

Publications:

Annual Proceedings Book. Price $25. Available from IFT/USA Instrument Society of America, 400 Stanwix Street, Pittsburgh, Pennsylvania 15222. Approximately 650 pages with focus on the state-of-the-art as current practices in many disciplines in the telemetry field.

Telemetry Journal (official publication of IFT). Bi-monthly $35 per year. Technology Publishing Corporation, Publisher, 825 Barrintgon Avenue, Los Angeles, California 90049, Telephone: (213) 826-8388. Reports on research and development, design, production, testing, evaluation, purchase and operation of telemetering components, systems and peripheral equipment.

Reprints available.

Society for Information Display (SID)

654 North Sepulveda Boulevard
Los Angeles, California 90049
(213) 472-3550

A society of individuals in the field of information display whose interest ranges from the psychological problems raised by the man-machine interface through information theory, operations research analysis, systems design, physics of display components, optics, electro-optics, storage media, electronic circuit, design and information processing. Has 11 chapters which hold individual meetings.

Holds Annual Symposium.

Publications:

Proceedings of the SID. Quarterly. $30 per year. Technical articles submitted by members and other organizations on information display and related areas. Back issues covering the annual symposiums are available.

The SID Journal. Price on request. Topical and technical articles, news and regular departments.

United States Independent Telephone Association (USITA)

1801 K Street N.W.
Washington, D. C. 20006
(202) 872-1200

The Data Communications Committee (Thomas Warner, Staff Director) has responsibilities in the field of computers and data communications of in-

terest to member companies both from the internal applications of techniques to telephone company operations and the potential customer demands upon the industry.

Publication:

Independent Telephone statistics. Annual Report—$2. Upon request, qualified personnel may be placed on a free mailing list to receive news releases and certain reports.

Holds yearly conventions.

Non-telephone companies may become associate members.

WEMA

E. E. Ferrey, Executive Vice President
2600 El Camino Real
Palo Alto, California 94306
(415) 327-9300

An association servicing the electronic and information industries in the west.

Fosters interchange of information through workshops, seminars and authoritative speakers at monthly meetings in eight geographic areas.

Furnishes current information for management, through statistical surveys and research.

Co-sponsors WESCON Trade Shows. One fourth of the 28 technical sessions are devoted to computers and peripherals.

Publications:

WEMA Perspective. Free to members and qualified industry personnel. Special reports on industrial relations, government affairs, international economics and foreign trade.

Viewpoint. Periodically. $10 to non-members. Forecasts and special reports in specific areas of interest.

WEMA Directory. Annual. $15 plus $1 shipping and handling. A reference source of the 600 member companies.

Management Guidelines. Subject lists and prices on request.

WEMA conducts surveys and reports to management on significant data on which to base operating decisions and performance review.

Information on Foreign Trade Associations and Professional Associations and their publications can be obtained from the following directories:

Year Book of International Organizations, Union of International Associations, rue aux Laines 1, 1000 Brussels, Belgium.

Ulrich's International Periodicals Directory, R. R. Bowker Company, 1180 Avenue of the Americas, New York, New York 10036.

The country desk officer of the Bureau of International Commerce (BIC), U.S. Department of Commerce, Washington, D.C. 20230, will provide additional assistance to manufacturers on foreign organizations and marketing information publications.

Chapter 3

Trade Publications, Newsletters, and Directories

This chapter lists most of the U.S. trade publications covering the broad field of "Data Communications Systems." Where controlled circulation publications are indicated, prospective subscribers should contact the publisher as to qualification for free subscriptions. Requests for further information concerning listed publications should be directed to the individual publisher. All prices are for mailing within the United States only and are subject to change.

Magazines, journals, or other publications of professional societies and trade assoaiations are listed in Chapter 2. Since many publications are adding chapters, articles or departments on Data Communications Systems, these listings may not be complete. Other publications may be found in publications directories such as: *The Standard Periodical Directory,* Oxbridge Publishing Co., Inc., 420 Lexington Avenue, New York, New York 10017; *Ulrich's International Periodicals Directory,* 1180 Avenue of the Americas, New York, New York 10036; *Business Publications Rates and Data,* Standards Rates & Data Service, Inc., Publisher, 5201 Old Orchard Road, Skokie, Illinois 60076; *Directory of Newspapers, Magazines and Trade Publications,* Ayer Press, West Washington Square, Philadelphia, Pennsylvania 19106. Prices subject to change.

APD Newsletter

Management Science Publishing, Inc.
Subsidiary of The Diebold Group, Inc.
Publisher
430 Park Avenue
New York, New York 10022
(212) PL. 5-0400

This newsletter is produced bi-weekly. $48 per year. Each issue is an interpretive, in-depth report on developments of significance to management in the areas of computers, information and decision technology, and related communications technology. Contains annual census of U.S. and European installations by size, model and manufacturer.

American Data Processing, Inc.—Publisher

19830 Mack Avenue
Detroit, Michigan 48236
(313) 886-7740

COMPUTER APPLICATION SERVICES.
Vol. 6 published in 1969; Vol. 7, 1970; Vol. 8, 1971. Each volume $35.

AUTOMATED EDUCATION HANDBOOK. $75. One-year updating, $45.

LIBRARY AUTOMATION HANDBOOK. $55. One-year updating, $35.

HOSPITAL MEDICAL AUTOMATION HANDBOOK. $55. One-year updating, $45.

The above are loose leaf handbooks covering general information, equipment, applications, systems and bibliographical information in specific areas named.

COMPUTER YEARBOOK AND DIRECTORY. Issued annually. $39. Three volumes containing reference guides to computer and data communication equipment, software, services, applications, user organizations, and manufacturers.

Automation Data Processing

May J. Armstrong, Editor
Bureau of Library Services
Michigan Department of Education
Publisher
Michigan State Library
735 East Michigan Avenue
Lansing, Michigan 48913
(517) 373-0640

Bibliography–monthly: Free. An annotated listing of books, documents, pamphlets and magazine articles pertaining to electronic data processing systems. The mailing list for this publication includes many government agencies and business corporations. Orders for publications can be placed with the publisher of the books or documents.

Bell Laboratories Record

L. A. Howard, Managing Editor
Published by Bell Telephone Laboratories, Inc.
Mountain Avenue
Murray Hill, New Jersey 07974
(201) 582-5631

Monthly. $5 per year. Reports on new Bell Laboratories developments in all aspects of communications science and technology including data communications.

Bell System Technical Reference Catalogue

Western Electric Company
Commercial Relations
Post Office Box 1579
Newark, New Jersey 07102
(201) 565-6000

No charge to qualified non-Bell System personnel. Bell System Technical References provide interface information to designers and manufacturers of business machines, communications systems and terminal equipment. Subjects covered by these Technical References include: Data set interface specifications, data communications systems and terminals, data connecting arrangements, voice connecting arrangements, various transmission channels and services and PICTUREPHONE® service. At the present time, these Technical References fall into four basic categories: Data Communications, Voice Communications, Transmission Engineering and PICTUREPHONE® service.

Bradford's Directory: Marketing Research Agencies & Management Consultants

P. O. Box 276
Fairfax, Virginia 22030
(703) 560-7484

Directory. 1971-72 biennial. $23.50. A description of the services offered by leading Independent Market Research Agencies. Cross indexed by agencies' names and by services available.

Business Automation

Edward J. Menkaus, Editor
Hitchcock Publishing Company
Publisher
Hitchcock Building
Wheaton, Illinois 60187
(312) 665-1000

Monthly. Free to qualified personnel, $20 to others.

This publication covers all aspects of business automation, including equipment analysis, in-depth

application studies, management education and philosophy. The former Business Automation Master Catalog and Specification Guide will be included in the December issue at no extra charge.

Offers "Business Automation Product Information Services" which is a loose-leaf format up-dated monthly. Four separate editions deal with following subjects: Computer Devices, $95; Peripherals, $95; Software, $95; Microfilm and Copies, $75 per year. Special "Hot Line" news reports issued as they occur.

Communications

B. Milton Bryan, Executive Editor
Communications Publishing Corporation, Publisher
1900 West Yale
Englewood, Colorado 80110
(303) 761-3770

Monthly. Free to selected qualified personnel. $10 per year to others.

Covers industrial, business and public safety radio and telecommunications. Primary emphasis on management-oriented articles translating technical developments and systems concept for users and managers.

Back issues and reprints available as supply lasts. March 1971, "Basics of Facsimile." June 1971, "Meter Reading" remote data acquisition. Reprint: *Evolution of Time-sharing.*

Communications News

Kenneth M. Bourne, Managing Editor
Harbrace Publication Inc., Publisher
402 West Liberty Drive
Wheaton, Illinois 60187
(312) 653-4040

Monthly. $5 per year to qualified personnel.

Edited for those in business and industry responsible for the use, operation, engineering, purchasing and maintenance of communication systems. Each issue contains a section on data communications and twice yearly has an in-depth review of this area.

"Special Reports" in 1971: May, Data Communications (SJCC); June, Antennas & Towers; October, Microwave; December, Data Communications (SJCC).

"Profile Articles" (articles on Organization or Industry Utilization of Communication), 1971: March, Utility Communications; May, Bank Communications. Back issues of "Special Reports" and "Profile Articles" are available as supply lasts.

Computer Decisions

Robert C. Haavind, Editor-in-Chief
Hayden Publishing Company, Inc. Publisher
50 Essex Street
Rochelle Park, New Jersey 07662
(201) 843-0550

Monthly. Free to qualified personnel, $15 to others.

Articles on applications of computers, software, peripheral gear, data preparation, data communications links and auxiliary equipment.

Special Reports:

Crisis in Data Communications. November 1970. A 16-page report including interviews with users, common carrier and FCC officials, and some market projection charts. $1.

Getting the most out of Data Links through Multiplexing. January 1971. A basic introduction to the subject showing how cost savings can be achieved. A table of available multiplexers with prices and key characteristics also included. 75 cents.

Point of Sale Systems Bridge the Gap. August 1970. How P.O.S. systems can help the retailer cut credit losses, improve merchandise control and speed customer service.

Some copies are in limited supply. Xerox copies of feature articles are $1 each.

Computer World

W. Walter Boyd, Executive Vice President & Publication Manager
Computerworld, Inc., Publisher
797 Washington Street
Newton, Massachusetts 02160
(617) 332-5606

Newspaper-Weekly. $9 per year. Newspaper is divided into 10 sections (departments). Three sec-

tions deal exclusively with the field of data communications and include: Systems/Peripherals, Communications, and Applications. Sections, such as news, editorial, societies, user groups and others carry stories concerning data communications.

Special supplement on industry sub-markets in last issue of each month. These included:

July 28, 1971—Communications, On-Line Modems, Multiplexers and Direct Access Terminals.

August 25, 1971—Minicomputers.

Marketbriefs: Report prepared in April 1971 by publication's Market Research Department gives dollar and unit figures on the various segments of the total computer market from 1969 and projections to 1972.

Computers & Automation

E. C. Berkeley, Editor
Berkeley Enterprises Inc, Publisher
815 Washington Street
Newtonville, Maine 02160
(617) 332-5453

Monthly. $9.50 per year. Annual "Computer Directory and Buyer's Guide," $9.50. Combined subscription $18.50.

Describes ADP equipment including peripheral equipment for data input/output transmission and conversion. The annual "Computer Directory and Buyers' Guide" issue published in late summer is a guide to firms, organizations, products, services, applications, and other areas.

Data Dynamics

(formerly Data Processing)
North American Publishing Co.
Publisher
134 North Thirteenth Street
Philadelphia, Pennsylvania 19107
(215) 564-5170

Monthly. $10 per year and controlled circulation.

Its editorial purpose is to translate technological innovations in data communications and data processing hardware, software and services into meaningful terms for those who operate and support EDP installations.

Reprint: "Data Communications," November 1970 ($3 each). Reviews impact of the expanding data communications field on EDP.

Articles in back issues (available depending on supply) are:

August 71, "Three Key-to-Disk experiences."

July 71, "Controlling Data Transmission Errors; Minicomputer Timesharing: Filling the Cost Gap."

June 71, "Credit System Smooths Operation."

Datamation

Robert B. Forest, Editor
Thompson Division of Technical
Publishing Co., Publisher
35 Mason Street
Greenwich, Connecticut 06830
(203) 661-5400

Twice monthly. Free to qualified personnel in United States and Canada. A semi-technical magazine, serving the information processing field on data communications, carries articles such as "Modems are in the Chips," "Private Line Users offered Bulk Rates," "More Ties with Home," "FCC Decision Opens Door to Bargain Basement Rates."

Xerox copies of articles, $1.50 each.

Yearly subject Index of all articles free on request while supply lasts. For Index write: Datamation, 94 South Los Robles Avenue, Pasadena, California 91101.

1971 Datamation Industry Directory—Cost $25. Covers 15,000 products and services from about 2,200 vendors in the computer field. Cross-referenced by vendor and products. Features, specifications and prices on products and services. 437 pages. Available from Technical Publishing Co., 1301 South Grove Avenue, Barrington, Illinois 60010.

Directory of the Computer Industry in the Washington, D.C. Area, 1971

Michael Swiger, Editor
Applied Library Resources, Inc.
Publisher
1000 Connecticut Avenue, N.W.
Suite 9
Washington, D. C. 20036
(202) 296-0022

Directory. $9.95. The Directory is organized into seven categories: Computer Companies; Computer

Users; Suppliers; R & D; Personnel; Education; and Government, which contain listing of organizations in the Washington, D.C. area that are involved directly with the computer industry. Computer Companies, Education, Computer Users, and Government Users categories include all organizations known no matter how small or large. The other categories include only the active companies in the area.

Electrical Communications

Pierre Mornet, Managing Editor
International Telephone and Telegraph Corporation, Publisher
Electrical Communication
190 Strand, London, WC2R 1DU

Quarterly. $4 per year. Engineering papers on research, development, manufacture, and operation of all means of electrical communications. Articles on foreign communication systems.

Electronic Data Processing Equipment

Valuation Guidelines
International Association of Assessing Officers, Publisher
1313 East 60th Street
Chicago, Illinois 60637
(312) 324-3400

Report. $3 per copy. This report first defines various terms, then proceeds to a brief discussion of discovery of leased equipment. Next, it focuses on methods of valuation, utilizing specific examples to clarify the methods discussed and providing a concise statement of the advantages and disadvantages of various methods. Free catalogue listing this and other leasing and assessment publications.

Electronic Design

Frank Egan, Editor
Hayden Publishing Co., Inc., Publisher
50 Essex Street
Rochell Park, New Jersey 07662
(201) 843-0550

Bi-weekly. Free to qualified persons.
Provides a concise source of practical ideas, techniques and data on design problems, and explores new trends that promise to change the nature of design. Some market and application reports. Covers U.S. and Western European areas.

The Electronic Engineer

Alberto Socolovsky, Editor
Chilton Co., Inc., Publisher
One Decker Square
Bala-Cynwyd, Pennsylvania 19004
(215) 748-2000

Monthly: Free to qualified personnel. Edited for management and engineers with design, R & D and manufacturing responsibilities. Starting with the August 1971 issue, a specially edited, mini-magazine called *Data Communications* will be included in each subscription issue. Beginning with the August issue, the next five copies will include a "Course on Data Terminals." At the conclusion, the complete series will be reprinted in a single volume. Reprints of other areas of data communications are available.

Electronic News

James J. Lydon, Editor
Fairchild Publication Inc., Publisher
7 East 12th Street
New York, New York 10003
(212) 555-5252

Weekly newspaper. $5 per year.

Each Monday, *Electronic News* reports the significant technical and business events of the preceding week in electronics markets. The reports include such sectors as Industrial, Commercial, Consumer, Government, Military, and Aerospace. Published semi-annually, "Computer Trends" is included as an insert.

Electronic Progress

Raytheon Company, Publisher
141 Spring Street
Lexington, Massachusetts 02173
(617) 862-6600

Quarterly. Free to qualified requesters.

Publication contains descriptive articles in the areas of telecommunications, computers, radar, dis-

plays, acoustics, medical electronics, and other fields of Raytheon's technical activities.

Electronics

Kemp Anderson, Editor
McGraw-Hill, Publisher
330 West 42nd Street
New York, New York 10036
(212) 971-3333

Monthly. $8 per year to qualified readers.

Editorial purpose: The reporting and interpretation of new and significant developments in the electronics industries so that the reader can make his technical and management decision based on sound information and judgment.

Each issue contains news and technical articles on various segments of the "Data Communications." John N. Kessler is Communication and Microwaves Editor.

Government Data Systems

W. Ronald Kops, President & Publisher
Media Horizons, Inc., Publisher
200 Madison Avenue
New York, New York 10016
(212) 686-3100

Bi-monthly. $6 per year. Free to qualified personnel.

Relatively new magazine directed to the managers in Federal, state and local governments responsible for the design, purchase and operation of data systems. Will include trends for the future use and requirements of the government sector for data systems.

Honeywell Computer Journal

A. R. Shrives, Managing Editor
Honeywell Information Systems, Inc.
Publisher
Mail Drop B-106
Post Office Box 6000
Phoenix, Arizona 85005
(602) 993-2900

Quarterly. $10 per year. A journal of computer technology covering new developments, surveys and reviews, applications, predictions, history, international standards and classical theory and experimentations.

Vol. 4, No. 4, 1969 and Vol. 5, No. 1, 1971 are two issues covering the area of computer communications.

Industrial Communications

ARCATA Communications
Information, Inc., Publisher
665 National Press Building
Washington, D. C. 20004
(202) 783-2482

Newsletter. 50 issues a year. $75 per year.

This publication is a source of news in the two-way radio communications and private microwave communications fields, emphasizing Government regulatory and Congressional developments, as well as industrial advances in communications.

Information Display

Hal Spector, Editor
A Technology Publishing Corporation
Publisher
825 South Barrington Avenue
Los Angeles, California 90049
(213) 826-8388

Monthly. $20 per year. Articles on data display systems and components, read-out devices, and plotters.

Each issue features a minimum of three full-length technical articles, and new product reports.

Information Processing '71

North-Holland Publishing Co.
Post Office Box 3489
Amsterdam, The Netherlands

Report. $130 (approximately).

Proceedings of the International Federation of Information Processors Congress 1971, held at Ljubljana, Yugoslavia, August 23-28, approximately 1,650 pages (in two volumes).

A brochure describing the type of papers covered during the proceedings, other publications of the

I.F.I.P. and Journals and papers of an international scope may be obtained from the North–Holland Publishing Company.

Keydata Corporation

Publisher
108 Water Street
Watertown, Massachusetts 02172
(617) 924-1200

Computer Characteristics Review. Directory. 3 issues yearly. $25. Single issue $10. Lists the important price and performance characteristics of over 350 central processors and more than 1,000 peripheral devices. Soft-covered, pocket-size, 250 pages.

Computer Display Review. Looseleaf updated 3 times yearly, $250 per year. $175 renewal subscription. Four volumes and more than 2,000 pages. Covers the field of display technology, including history, current and potential applications, hardware and software characteristics, comparative analysis of features and prices.

Management Adviser

American Institute of Certified Public Accounts, Publisher
666 Fifth Avenue
New York, New York 10019
(212) 581-8440

Bi-monthly. $12.50 to non-members.

Devoted to keeping accountants concerned with management services, as well as management consultants and systems specialists in industry, abreast of developments in information processing systems.

Articles dealing with time-sharing and news stories in the field of data communications.

The Marketing Information Guide

Trade Marketing Information Guide, Inc., Publisher
1028 Connecticut Avenue, N.W.
Washington, D. C. 20036
(202) 785-3064

Monthly. $10 annually. Lists and annotates selected publications and articles from private and Government sources related to marketing and distribution. A section is devoted to electronic data processing. Includes a quarterly and annual cumulative subject index.

Microwaves

Howard Bierman, Publisher
Hayden Publishing Co., Inc., Publisher
50 Essex Street
Rochelle Park, New Jersey 07662
(201) 843-0550

Monthly. Free to qualified personnel.

Microwaves serves the microwave field and covers research, design development, applications and use of devices, systems and techniques. Frequencies from VHF through light, including coherent optical and infra-red frequencies generated by laser devices. Special editorial features Sept. 71 "Communications" and June 71 "Microwave International."

Offers assistance in conducting a readership study among a company's customers.

Modern Data

S. Henry Sacks, Editor & Publisher
Modern Data Services, Inc., Publisher
3 Lockland Avenue
Framingham, Massachusetts 01701
(617) 872-4824

Monthly. Free to qualified personnel. $18 per year to others.

Edited for manufacturers and users of computers and data systems. Regular departments include News Round-up, Data Communications Clinic.

Features each month "Profiles" (Product, Technology, Industry or Corporate), which are in-depth reports.

Profiles include:

July 71—Magnetic Tape Systems; Interactive CRT Terminals.

May 71—Teleprinters; Audio Response—What, Where and When?

December 71—Each December, A Technology Profile on Modems and Multiplexers.

Other Profiles in back issues available at $1.75 each issue.

Techfiles: Looseleaf reference service updated quarterly, 12 subjects $60 per year per subject. Basic reviews, product comparison charts, market studies, and new developments.

Techfile subjects are: Interactive CRT Displays, Printers & Teleprinters, Minicomputers, Disk/Drum

Memories, Cassette-Cartridge Transports, OCR & Mark Readers, Data Sets & Multiplexers, COM Equipment, Key-To-Tape/Disk, Magnetic Tape Transports, Digital Plotters, Time Sharing Services.

Pergamon Press

Maxwell House, Fairview Park
Elmsford, New York 10523
(914) 592-7700

The European Computer Survey 1969/70 Sixth Edition. Report $280. This publication provides a statistical survey of the computer industry in Europe, including predictions for the market potential through 1972.

The European Computer Users' Handbook. 1969/70. Seventh Edition. Report $25. This volume describes in detail every computer of consequence currently used in Europe together with peripheral equipment, most analogue computers and calculators, and data transmission equipment.

British Commercial Computer Digest. Eleventh Edition, 1970. Digest. $32. Provides a detailed report on the computer industry in Great Britain at the present time, this volume is most valuable for computer and ancillary equipment manufacturers, office equipment suppliers, interior designers and their clients, and all workers in the fields of industry and commerce needing up-to-date information about computers.

Who is Related to Whom in the Computer Industry. Fourth Edition, 1970. Report. $32. The fourth edition of this annually revised publication provides the names and addresses of all manufacturers directly engaged in the computer industry, with cross-references showing parent and subsidiary companies. This directory also includes a geographical index and a list of organizations classified under computer activity.

Catalogue with descriptions and brochures on request.

Peripherals Weekly

P. Dyer Evans, Editor
EDP News Service, Publisher
514 10th Street, N. W.
Washington, D. C. 20004
(202) 737-7677

Weekly Newsletter. $75 per year, 30 day free trial on request.

Covers the peripheral equipment segment of the electronic data processing industry, including government and industry activities, new products, company news, contract awards, financial and personnel news.

R.C.A. Electronic Age

Radio Corporation of America, Publisher
Publications & Communications Services
30 Rockefeller Plaza
New York, New York 10020
(212) 265-5900

Quarterly. Free to select qualified personnel.

Articles on electronics in areas such as space, defense, radio, television, and communications. Written in nontechnical language for a readership that ranges from interested layman to electronic expert.

RCA produces many manuals and technical publications. A list of publications that would fall in the area of "Data Communications" and "Marketing Management" may be obtained from: Sales Promotion Coordinator, Advertising Department, R.C.A. Data Processing Division, 200 Forest Street, Marlboro, Massachusetts 01752.

Major groups of manuals available are Communications Controllers and Devices (13 items); Remote Terminals (11 items); and Communications (12 items).

Telecommunications

Eugene Bignami, Executive Editor & Associate Publisher
Horizon House, Publisher
610 Washington Street
Dedham, Massachusetts 02026
(617) 326-8220

Monthly. Free to select qualified personnel. $25 per year to others.

A broad-based communications magazine covering all aspects of communications equipment and services. It is oriented, with the latest developments, equipment, and systems applicable to our modern day communications networks. Emphasis on data communications areas.

It includes:

November 1970—On-line time-share computer services.
December 1970—Hard copy printer survey.
December 1971—Concentrators and multiplexers survey.
May 1971—Optical character recognition equipment survey and facsimile survey.
June 1971—Third annual modem survey.
July 1971—Report on specialized common carrier networks.

Reprints obtainable at a nominal price.

Telecommunications Reports

Fred W. Henck, Editor
1204-1216 National Press Building
Washington, D. C. 20004
(202) 347-2654

Newsletter. Weekly. $125 per year. News coverage for communications carriers and organizations with a substantial interest in communications as users and suppliers. It covers the non-broadcast communications field—common carrier regulation, satellite, labor, military and domestic and international developments.

Telephone Engineer & Management

Ray H. Smith, Editor & Assistant Publisher
Harbrace Publications, Inc., Publisher
402 West Liberty Drive
Wheaton, Illinois 60187
(312) 653-4040

Twice Monthly. $6 per year. Edited for men in the telephone industry with responsibility for the design, engineering, construction, installation, maintenance, operation and management of telephone systems.

Special editorial emphasis: September 15, 1971—New service concepts; December 15, 1971—Customer equipment; and January 1, 1972—Total communications.

Special report: Facts for Marketers N1-15-71 JGR.

Telephony

D. S. Fargo, Publisher
Telephony Publishing Corporation Publisher
35 West Jackson Boulevard
Chicago, Illinois 60604
(312) 922-2435

Weekly. $6 per year. Report on news of government legislation and regulation, state and national telephone and telecommunications conventions and meetings, company programs, new techniques, products and services. Several reprints available.

Information on trade magazines and publications published abroad can be obtained from the following directories and from the Country Desk Officers of the Bureau of International Commerce (BIC), U.S. Department of Commerce, Washington, D.C. 20230.

Ulrich's International Periodicals Directory
R. R. Bowker Company
1180 Avenue of the Americas
New York, New York 10036

Year Book of International Organizations
Union of International Associations
rue aux Laines 1, 1000 Brussels, Belgium

Chapter 4

U.S. Government Publications and Data Sources

The Federal Government is a major source of information and statistical data on data communications and related activities. This chapter lists the principal publications of the Department of Commerce and other agencies relevant to this field and sources of statistical data. Additional publications and information can be obtained from the checklists listed below and from the Department's National Technical Information Service (NTIS).

The documents listed in this chapter are available from the sources indicated in the text. Orders may also be placed at U.S. Department of Commerce Field Offices.

Bureau of the Census (BC)
Washington, D.C. 20233
(Make check or money order payable to Superintendent of Documents)

Export Information and Services Div., BIC
U.S. Department of Commerce
Washington, D.C. 20230
(Make check or money order payable to U.S. Department of Commerce)

National Technical Information Service (NTIS)
Springfield, Virginia 22151
(Make check or money order payable to National Technical Information Service)

Superintendent of Documents (Sup Docs)
U.S. Government Printing Office
Washington, D.C. 20402
(Make check or money order payable to Superintendent of Documents; when charging to a deposit account, please give your account number)

Domestic Publications

Commerce Today—Issued bi-weekly. Principal periodical published by the U.S. Department of Commerce. Includes articles of a marketing nature, country oriented. Reports developments in business and technology from 20 different agencies within the Department. Topics include economic affairs, regional economic development, minority enterprise, maritime fleet renewal, weather control, global travel promotion, and use of new census data. Cost $15 annually. Available from Superintendent of Documents or Department of Commerce Field Offices.

U.S. Industrial Outlook—Issued annually. Primary publication of Bureau of Domestic Commerce. Presents details on over 200 industries with analysis and projections for current year and future. Each industry covers changes in demand and supply, international trade, pollution control plans, new technology, and capital investments. Includes chapters on: Telephone and Telegraph Equipment, Electronic Computing Equipment, Electronic Communications Systems and Equipment. Cost in 1972, $3.75. Order from Superintendent of Documents, NTIS, or Department of Commerce Field Offices.

Commerce Business Daily — Daily Monday through Friday except Federal holidays. A daily list of U.S. Government procurement of services, supplies, research and development sources sought, contract awards, Department of State-AID financed items, foreign government tenders, future construction abroad and surplus property sales. Cost $25 per year, $30.25 additional for air mail delivery. Available from Superintendent of Documents.

Business Machine Market Information Sources—June 1971. This Bureau of Domestic Commerce

publication contains a compilation of sources of information on the business machines industry. Most of the entries are concerned with the electronic computer and data processing area. Cost 50 cents. Available from Superintendent of Documents, Stock No. 0308-0340.

U.S. Census of Manufactures—The 1967 Census of Manufactures publications contain statistics on U.S. production, employment and payrolls, inventories, value added by manufacture, capital expenditures, cost of materials, operating ratios, and geographic areas. Statistics on data communications equipment are contained in the following reports:

MC67(2)36D—Communications Equipment, Including Radio and TV, and Electronic Components and Accessories. Cost 65 cents. Order from Bureau of Census.

MC67(2)35F—Office, Computing, and Accounting Machines. Cost 65 cents. Order from Bureau of Census.

Next census will be taken in 1973 for year ending 1972. Available late 1974.

Current Industrial Reports—The following annual Census publications contain detailed quantity and value of shipments data on data communication equipment products:

MA-36 N—Selected Electronic and Associated Products. Annually. 25 cents.

MA-35 R—Office, Computing and Accounting Machines. Annually 25 cents.

BDC 363 B—Communications Equipment. Annually. 25 cents.

Order from Bureau of Census or U.S. Department of Commerce Field Offices.

United States Domestic Exports and Imports of Selected Communications and Electronic Products—This Bureau of Domestic Commerce publication contains export and import product statistics by country. Twice yearly. Free. Order from the Communications and Electronics Division, U.S. Department of Commerce, Bureau of Domestic Commerce, Washington, D.C. 20230.

International Publications

World Markets for U.S. Exports (WMUSE)—Summary versions of market studies done by private market research firms for the Department of Commerce under contract. The reports focus on a particular product in a particular country. Electronic data processing equipment studies are available for almost every industrialized country. Available WMUSE's are listed in the *Checklist of International Business Publications*. NTIS. 10 cents.

Market Share Reports—Catalogue. Reports trace shifting trends in the movement of exported products of all free world countries. Included is a 6-year tabulation of data on commodities imported by some 90 countries. When combined, these reports give the U.S. percentage shares of the market for 850 commodities in major markets. Market shares of eight principal U.S. competitors can be calculated from the data given. Free. NTIS.

The following two case studies are available to show uses of the Country and Commodity reports:

(1) "Overseas Business Reports: The Use of Market Share Reports." Commodity Report on Air Conditioning Machines. OBR 69-5, 8 pp. March 1969, 15 cents, NTIS.

(2) "The Uses of Market Share Reports: Country Report on Italy." OBR 69-6, 8 pp. March 1969, 15 cents, NTIS.

Using individual Market Share Reports, a businessman can compare his own export performance to any specific market, over a 5-year period, with that of his own industry as a whole or with that of manufacturers of the same product in other countries. Country Reports $3; Commodity Reports sold only in quantities of five, $3 per set, NTIS.

Country Market Surveys—Evaluate the nature and scope of the markets for U.S. products in individual countries. Outline industrial establishments, banking and financial structure, and natural resources development. Describe present import patterns, distribution facilities and trade practices. Cost 65 cents to $1.25 (depending on size). Superintendent of Documents. The surveys are listed in the *Checklist of International Business Publications.*

Global Marketing—The global marketing program is a service of the Department's Bureau of International Commerce (BIC) to help increase U.S. exports. Joint company/government export actions are initiated on a worldwide basis, covering 2 to 5 years for industries selected having the highest potential for sustained export increases. The data communications industry is one of those selected. Information on this program is contained in *Global Market Survey: Electronic Data Processing Equipment, Peripheral Devices and Software*. A report $1.25. This publication and additional information may be obtained from the U.S. Department of Commerce, BIC, Export Development Services–920, Washington, D.C. 20230 or the Department of Commerce Field Offices.

Overseas Business Reports (OBR's)—These reports provide basic background data for businessmen who are reviewing their international trade position in current markets, or who are considering entering new areas. Each OBR discusses one single topic in one country. Each title is revised and updated as required. Available from Superintendent of Documents, $16 a year; $5 additional for foreign mailing. Single copies for the current or prior years 15¢ each from NTIS only. A list of OBR's is contained in *Checklist of International Business Publications.*

Export Control Regulations (June 1, 1971)—Annually on June 1. Includes Export Control Bulletins issued periodically to supplement the regulations. Outlines regulations, requirements described in detail. Cost $12. NTIS.

Cumulative Index to Foreign Market Surveys, December 1968-1971—This cumulative index contains only Foreign Market Surveys prepared on a contract basis by private research organizations for the Department of Commerce. It provides a complete listing of reports completed between December 1968 and July 1971 that are made available on a loan basis. Cross indexed by numerical document number, country and SIC product code. Available free from the Export Information and Service Division, BIC, U.S. Department of Commerce.

Other Government Publications

Computer-Communications Networks, NTIS—June 1971. Prepared by the Mitre Corporation for the Office of Science and Technology, Executive Office of the President. Gives approach for integrating, evaluating increasing information on computers, communications. Emphasizes man-machine interaction for medicine, law, education. Includes decision making and policy-systems analysis. Projections made to 1980–85 for the technology and related fields. Suggests action programs. $6. PB 202778–03.

Federal Communications Commission (FCC)

Office of Information
1919 M Street, N.W.
Washington, D. C. 20554
(202) 632-7260

A listing of FCC publications, EDB Bulletin No. 1 "FCC Publications and Where They May Be Obtained," is available on request from the Commission.

Center for Computer Science & Technology

National Bureau of Standards
U.S. Department of Commerce
Washington, D. C. 20234
(301) 921-1000

This Center conducts research and provides technical services designed to aid Government agencies in the selection, acquisition, and effective use of automatic data processing equipment; and serves as the principal focus for the development of Federal standards for automatic data processing equipment, techniques, and computer languages.

The Center is responsible for the development of the Federal Information Processing Standards (FIPS) which are the official publications relating to standards adopted and promulgated under the provisions of Public Law 86–306, and under Office of Management and Budget Circular A–86. For informamation concerning FIPS (Nos. 1–18 issued to date), contact NBS, Center for Computer Sciences and Technology, Office of Information Processing Standards, Washington, D.C. 20234.

NBS publications are listed in *"Publications of the National Bureau of Standards 1970, NBS Special Publication 305, Supplement 2.*

Federal Statistical Directory—Annually. This annual publication prepared by the Office of Management and Budget in the Executive Office of the President contains a comprehensive listing, by agency and appropriate organizational units, the names and locations of key persons engaged in Federal Government statistical programs. Includes telephone numbers. Cost $1.50. Superintendent of Documents.

Police Telecommunication Systems—Prepared for U.S. Department of Justice, Law Enforcement Assistance Administration by the Associated Public-Safety Communications Officers, Inc.

A comprehensive guide to Police Telecommunications Systems. Each step in the system is considered from the citizens request for service to the officer in the field, from Commanders to Field Personnel, and from the Police Department Headquarters to central information bank, other agencies and back to the public. $3.75. Stock No. 2700–0075. Available from Superintendent of Documents.

Inventory of Automatic Data Processing Equipment in the U.S. Government—Annually. A General Services Administration publication pro-

viding information on the number of electronic computers in use throughout the U.S. Government, including owned and leased. Reflected in the tables are the number and types of computers by organization, location and manufacture. Charts show summaries of this information. Cost $2.75. Stock No. GS 2.15,970. Available Superintendent of Documents.

Summary of ADP Activities on Cost, Manpower and Utilization in the U.S. Government—Annually after end of fiscal year. A General Services Administration publication with charts showing number of computers by management classification, percentage owned or leased, distribution by manufacture and agency, contractor or Government operated, number of units by price category, price range by manufacturer, hours per month by price range of systems, and other information. Tables given by agency provide more complete cost and manpower figures. 50 cents. Available Superintendent of Documents.

U.S. Government Organization Manual—Revised annually. The United States Government Organization Manual is the official handbook of the Federal Government. It contains descriptions of the agencies of the legislative, judicial, and executive branches, including brief descriptions of certain boards, commissions, and committees. The Manual contains brief statements on the quasi-official agencies and of selected international organizations.

A new section entitled "Sources of Information" has been included in most agency statements. Information includes employment, contracting with the Federal Government, environmental programs, small business opportunities, publications, speakers and films available to civic and educational groups, as well as programs and activities of specific agencies. $3. Stock No. 2203–0887. Available from Superintendent of Documents.

National Technical Information Service (NTIS)

NTIS, an agency of the U.S. Department of Commerce, is one of the largest processors (over 50,000 reports a year) of information in the world. These reports are the result of research work conducted with Federal funds by more than 225 agencies within the Federal Government, their grantees and contractors. NTIS also is the central coordinator for Commerce Department information products such as: Current information services, Census Bureau statistics, market reports for industry to promote domestic and international trade, research reports by the National Bureau of Standards and National Oceanic and Atmospheric Administration. NTIS offers several announcement services. All titles listed in announcements are available as paper copies and many on microfilm or microfiche.

Fast Announcement Service—**Highlights of** selected new reports, 75 categories. The frequency of issue depends on new input, selection, and the individual categories chosen by a subscriber. Any or all categories $5 per year.

Government Reports Topical Announcements—Reports on new technical, business, industry and commerce. Reports contain title, corporate source, author, date, pages, supplementary notes and abstract. Thirty-five fields. Published semimonthly, $5 per field per year.

Five fields covering "Data Communications"

1. Communications
2. Computer; Control Theory; Information Theory
3. Electrotechnology
4. Management Research and Practices
5. Library and Information Science

NTISearch—Information retrieval for Government-funded R&D reports. Abstracts of reports since 1964 to date. Each search will supply up to 100 abstacts depending on specificity of the field (average 25). Abstracts are retrieved from computer indexes (over 200,000 titles) and checked by research specialist for relevancy. $25 per research.

Selective Dissemination of Microfiche (SDM)—Fast and inexpensive method of receiving new documents. Subscribers may choose by Government agency or subject category. Subject category may be chosen from all agencies and by selecting sub-categories. Distribution semi-monthly. 35 cents per copy (Regular microfiche price 95 cents).

Contact NTIS for more detailed information. After agency's subject category has been selected, NTIS will furnish an estimate as to the number of microfiche copies that would be issued on an annual standing order basis.

For further information on any of the above services, contact NTIS, U.S. Department of Commerce, Springfield, Virginia 22151. Telephone: 703-321-8523.

Bibliographies and Checklists

Business Service Checklist—A 4-page guide to all Department of Commerce publications. Issued weekly. Cost $2.50 per year. Order from U.S. Department of Commerce; make check payable to Superintendent of Documents.

Checklist of International Business Publications—A guide to market information, economic trends, country reports, and other material published by the Bureau of International Commerce, U.S. Department of Commerce. Lists publications obtained from U.S. Foreign Service posts as analyzed and supplemented by commodity and country specialists in the U.S. Department of Commerce. Free. NTIS.

Index to Foreign Production and Commercial Reports—Issued monthly, cumulative *Index* annually in August. Lists commodity, industry and market research reports received by the Department of Commerce during the preceding 4 weeks. These reports, varying in length from 4 to 60 or more pages, are prepared by U.S. Government representatives abroad. Additionally, the *Index* contains a listing of Foreign Market Surveys published during the period, available on a loan basis. These reports are available only to U.S. businessmen when requested on business letterhead. Surveys are prepared on a contract basis by private foreign research firms for the Department of Commerce. The reports are index cross-referenced in three categories: Numerical; country; and SIC code and/or general subject matters. Free. Available from the Export Information and Services Division, BIC, U.S. Department of Commerce, Washington, D.C. 20230.

Price List of Government Publications—Updated yearly. Price list No. 82, *Radio and Electricity; Electronics, Radar and Communications.* Describes available books or pamphlets printed by the Superintendent of Documents pertaining to telecommunications, computers and data processing, telephone and telegraph. Free. Available from Superintendent of Documents.

Chapter 5

Major Future Users of Data Communications

The following eight economic sectors of the economy have been selected because they show the greatest promise of rapid growth in the use of data communications during the 1970's: Banking, time-share and information services, retail trade, securities, insurance, health and transportation.

Some of these sectors are actively developing standards, numerical codes, and utilizing vendor assistance in expanding their use of automatic data processing (ADP). The major associations and information sources for each sector are listed in this chapter. The manufacturing sector has not been included, despite its growth potential, because there are not as yet any known trade or professional associations or publications specializing in this area. This is due to the varied uses of data communications in this sector.

Banking

Banks today process 22 billion checks a year with each check handled an average of eight times. This with the expanding volume of other types of transactions is requiring the banking industry to vigorously pursue the use of electronic data processing (EDP) in a Monetary and Payments Systems (MAPS). These systems include exchange of paperless entries by depositors and between banks, point of sale terminals with direct bank connections, automatic payroll deposits, standardization of bank credit cards, a national system of electronic credit card authorizations and similar activities. The American Bankers Association is coordinating a large part of the work in this area for the private sector.

The Federal Reserve System also has several evaluation projects under study. It has recently authorized the transfer of amounts of $1,000 and more over its wire service by member banks at no charge.

Indications are that the banking industry will be the largest user of data terminals and other data communications equipment during the 1970's.

American Bankers Association

1120 Connecticut Avenue, N. W.
Washington, D. C. 20036
(202) 467-4000

The ABA's Operations and Automation Division is the headquarters for EDP activities. The Division holds conferences and workshops, publishes books and manuals. It also makes a national Automation Survey.

A descriptive list of ABA publications pertaining to banking and its use of EDP/ADP, "Aids for Automation," can be obtained free. The association publishes *Banking: Journal of the American Bankers*

Association, 350 Broadway, New York, New York 10013, (212) 966-7700. Monthly. $8 per year. This publication has frequent articles on use of EDP in banking such as the April 1971 issue's "Special Report on Bank Automation."

The information from the tri-annual Automation Survey is published in *Results of the 1969 National Automation Survey: A Special Analysis*. 264 pp. $50 to nonbanks. A series of unique and significant correlations of responses to the survey which provide a useful tool for research and planning efforts.

The information from the 1972 survey will be presented to the Conference on Automation on May 1, 1972 and published in July 1972.

The American Institute of Banking is a section of the Education Group of the ABA. It offers a number of courses including Fundamentals of Bank Data Processing and Computer Basics for Management. Also offers publications and study courses. All the above items are available to those not in the banking community. Further information may be obtained from AIB at the same address as ABA.

Bank Administration Institute

303 South Northwest Highway
Parkridge, Illinois 60068
(312) 698-3381

Bank Administration Institute serves the banking industry with a broad program in the fields of bank administration and operations.

The BAI has over 7,800 member banks with 236 local chapters. It has eight divisions which conduct the various functions of the BAI: Publications, Memberships, Charter Bank Auditor, Public Relations, Administration, Education, and the two largest divisions are Research and Technical Operations.

Non-bank organizations may become service subscribers in order to receive BAI publications. A complete list of over 70 publications may be obtained from the BAI at no charge.

Publications:

The Magazine of Bank Administration. Monthly. $8 per year. Feature articles plus regular departments: Central File, Systems and Equipment, Institute Information, Institute Events, and Executive Opportunities.

Journal of Bank Research. Quarterly. $8 per year. In-depth papers and reports on bank operations and management.

Bank Systems & Equipment

Alan Richman, Editor/Associate Publisher
Gralla Publication, Publisher
1501 Broadway
New York, New York 10036
(212) 868-0700

Monthly. $5 per year. The primary editorial objective is to keep bank and savings and loan officers informed of new developments that affect the systems side of a financial institution.

Special Series: "Fund Transfer Forum" reports on the change and advancement of the ABA Monetary and Payments Systems (MAPS).

January Issue: Annual Directory, classified and other listings, including Communication Systems, Computer Systems, Data Processing Equipment, Facilities Management (EDP), Input/Output Devices, and Time-Sharing Services.

Also publishes *Who's Who in Bank Operations*, listing chief operations officers of the Nation's top 100 commercial banks, top 20 savings and loans, top 10 mutual savings banks, and top 5 credit unions.

Federal Reserve System

20th and Constitution Avenue, N.W.
Washington, D. C. 20551
(202) 737-1100

Information concerning the expanded use of the Federal Reserve System's communication facilities for the transfer of deposits and activities of the 12 Federal Reserve Banks such as: Special Committee on Paperless Entry (SCOPE), San Francisco Bank; Report on Improvements in Payments Mechanism Phase I and II, Atlanta Bank. May be obtained by contacting the Office of the Special Assistants to the Board at the above address.

Information Services

This segment is divided into two general areas of computer time-sharing and librarys or data banks.

Time-Sharing: As the cost of modems, software, communication services, terminals and other items are reduced, the market base for time-sharing service will widen. Smaller companies will find it economically feasible and a necessity for proper management

information to use a time-sharing service. The standardization of a manufacturer's code will make it possible to use EDP and data communications to perform additional functions such as inventory control, and product turnover.

Association of Data Processing Service Organizations, Inc. (ADAPSO)

551 Fifth Avenue
New York, New York 10017
(212) 661-0222

The association directs its efforts toward the improvement of management methods and service possibilities, the development of an appreciation for high ethical and performance standards, and the creation of an atmosphere of general public acceptance for the data processing services business.

Annual Directory of Data Processing Service Centers. $10. Listing by state and city of ADAPSO member firms providing electronic data processing services. Also includes Canadian and world centers.

Annual Industry Survey of Computer Services Industry. $95. Yearly report of current industry statistics, future projections, financial data, operating ratios delineating all costs involved in data processing operations.

List of other publications available.

Information Industry Association (IIA)

P. G. Zurkowski, Executive Director
1025 15th Street, N. W.
Washington, D. C. 20005
(202) 659-3928

Composed of for-profit organizations that create, market and utilize information products, services and systems. The purpose of IIA is to promote the development of private enterprise in the information field and to provide its members with a voice in determining the course of that development.

Libraries—Data Banks

Although the use of electronic computers in library work began about 10 years ago, no major library in this country is yet fully automated.

With the increase in the number of publications and the higher costs of operations the libraries are expanding use of and looking for new ways to use EDP. Machine readable systems for cataloging new publications and search and retrieval is being used today. A satellite system of smaller libraries tied online to a central processor will be more widely used.

Very few libraries can afford dedicated computers capable of handling their operations. Those who use computers generally share them with other activities of the parent institution, or share with other libraries.

Because of the comparatively small market, manufacturers have not produced computers, related equipment, and basic software systems designed specifically for library applications. Therefore the library community must use equipment and systems developed for quite different kinds of applications. This shortcoming is especially acute in that most input/output devices cannot adequately handle the expanded character sets required in library operations.

Not all library functions are equally amenable to automation. Operations of a routine, clerical, and repetitious nature are especially adaptable to computer systems. Examples are: ordering, searching, circulation control, and book-catalog printing.

American Library Association (ALA)

50 East Huron Street
Chicago, Illinois 60611
(312) 944-6780

More than 37,000 Library Associations, libraries, librarians, library trustees, publishing houses, business firms, and interested individuals in every state, Canadian province, and major country of the world are members of the American Library Association.

The Information Science and Automation Division has two publications which report use of ADP in library operations: "Journal of Library Automation," quarterly and "JOLA Technical Communication," monthly. Sold only in combination for $15.

The Resources and Technical Service Division publishes "Library Resources and Technical Service." Quarterly. $8 per year. A complete list of the

Association's books, journals and other publications may be obtained from ALA.

Council on Library Resources, Inc.

One Dupont Circle
Washington, D. C. 20036
(202) 296-4757

The Council on Library Resources, Inc., is an independent non-profit body incorporated in the District of Columbia with the principal objective of aiding in the solution of library problems.

The Council was established in 1956 at the instance of the Ford Foundation.

The Council conducts much of its work through grants or contracts to appropriate organizations or individuals. It welcomes proposals for work in furtherance of its objectives.

The Library of Congress

Processing Department
MARC Development Office
Washington, D. C. 20540
(202) 426-5123

Machine-readable cataloging dates back to 1964, when an initial study was conducted to test possible methods of converting Library of Congress cataloging data into machine-readable form.

In March 1969, the MARC Distribution Service was implemented to provide machine-readable records via magnetic tapes to others working in the automation of library operations. These tapes are available on either a weekly or quarterly basis; each subscriber is responsible for developing his own internal processing programs.

A test MARC II tape is available. Contains 200 records and available either as 7-track (556 cpi) or 9-track (800 cpi) and a manual is included. Cost: $20. Order from Chief, Cards Division, Library of Congress Building, 159 Navy Yard Annex, Washington, D.C. 20541.

A free publication "Information on the MARC System" contains complete information on the MARC distribution service, the RECON Pilot Project and other projects. A bibliography of articles, reports and other publications on the MARC system is also available.

Securities

The Securities Industry has made many advancements in both the front and back office use of ADP and Data Communications. The New York Stock Exchange, The American Stock Exchange and The National Association of Securities Dealers (over the counter) have systems for receiving current market quotations. These systems are expected to expand and offer more services such as buy-order functions, special order request such as sell-short and stop-limit, customer portfolio display, and other statistical data. In back office operations, a major future concern is the transfer of stock certificates and accounting procedures.

American Stock Exchange, Inc.

Director of Publications
86 Trinity Place
New York, New York 10006
(212) 938-6000

The American Exchange has several publications that are concerned with automation.

Management & Operations. Magazine, 10 times per year. Free to interested firms. Contains "newslines" and articles on the use of EDP in the securities industries.

Securities Industry Over View Study. September 1969. $2.50 per copy. The American Stock Exchange, believing appraisal of the operations of the securities industry was needed, retained North American Rockwell Corporation to study the industry's operating systems and to make recommendations for improvements. Covers order entry and edit, trade reporting, clearance and settlement, stock transfer, dividend processing and industry use of computerized information handling systems.

Management Planning and Control Manual for Brokerage Organizations. Loose-leaf. $100. This manual offers a detailed guide for obtaining significant and timely data on brokerage operations and costs. It is basic to the Exchange's management information system.

Banking & Securities Industry Committee (BASIC)

84 Williams Street
New York, New York 10038
(212) 248-2820

By forming BASIC, the banking and securities industries were positioned for the first time to address, through a single organization, common problems involved in the processing of securities. It is co-sponsored by: The New York Clearing House Association, New York Stock Exchange, American Stock Exchange, and the National Association of Securities Dealers.

The BASIC Task Force has 14 projects under way or consideration:

- Bank-Broker and Broker-Bank Deliveries through the Central Certificate Service.
- CUSIP Numbers on Security Certificates.
- Uniform Documents.
- FINS Numbering System.
- Uniform Transfer Requirements.
- Machine-Readable Stock Certificates.
- DK's of COD Deliveries.
- The Independent Registrar.
- Liaison with Financial Communities.
- Legal Problems for Comprehensive Securities Depository.
- Controls, Safeguards, and Principal Procedures.
- Single Depository vs. "Two Module" System.
- Quantitative Data on Securities Movement.
- Organization and Operations on Comprehensive Securities Depository System.

National Association of Securities Dealers, Inc.

1735 K Street, N. W.
Washington, D. C. 20006
(202) 833-7200

On August 7, 1939, the Securities and Exchange Commission approved the National Association of Securities Dealers' registration as a self-regulatory organization for the over-the-counter market, which is the market for all securities transactions that do not take place on a registered stock exchange by approximately 4,700 broker dealers.

In April 1971 the association began its Automatic Quotations system. Information on the system and list of publications available may be obtained from the Automation Department of the NASD.

New York Stock Exchange, Inc.

Publications Division
11 Wall Street
New York, New York 10005
(212) 623-2025

The NYSE has several publications that cover standards and paper flow procedures involved in the securities trading system. This information is useful in adapting equipment to perform certain of these tasks.

Floor Communication Standards #467. $4. Includes chapter on floor machines and forms requirements; Standard order format; Standard report format; and odd-lot automation. Prepared by Systems Center, Development Department and the Floor Department.

CISIP Manual #536. $10. Covers 11 planning memos describing a specific phase of the use of the CUSIP numbering system that will be mandatory April 1, 1972 on all stock and other certificates.

CCS Book #515. Free. Describes "The Billion-Share Automated Securities Depository of the Central Certificate Service.

Specialist's Display Handbook and Clerk Entry Terminal Handbook. Available only on approval of a special request to the Planning Department.

Securities Exchanges Study

Rand's Communication Department
Publisher
1700 Main Street
Santa Monica, California 90406

Report. Volume I, $1. Volumes II and III, $3 each.

A study commissioned by the New York and American Stock Exchanges and the National As-

sociation of Securities Dealers on EDP usage to reduce cost and speed up service.

Volume I—Summary of the study.

Volume II—Evaluation of other alternatives.

Volume III—The trade completion simulation model.

Retail & Wholesale Trade

The retail trade industries are expected to be major users of data communication facilities and ADP equipment.

The National Association of Wholesale-Distributors which is a federation of 74 national wholesale-distributor commodity line associations has created the Distribution Number Bank, Inc. to assign numbers to approximately 400,000 U.S. manufacturers. This became necessary because several commodity areas were beginning to assign manufacturers numbers. Since there was no correlation between these numbering systems and as a number of products have several commodity distribution channels, standardization became imperative. To effectively use ADP in the retail industry it is necessary for manufacturers to list their manufacturing code and product identification numbers in their catalogues and invoices.

The grocery industry has formed an Ad Hoc Committee to develop a machine readable code or symbol which would be included on the package by the manufacturers. This will make possible machine reading, computerized, checkout stands.

Ad Hoc Universal Product Code for Grocery Industry

McKinsey & Company, Inc.
245 Park Avenue
New York, New York 10017
(212) 687-3600

The committee has adopted a 10-digit numerical code and has chosen the Distribution Number Bank (DNB) to administer this code. Plans are being made to make an interface of the 10-digit grocery code with the 11-digit DNB code of the National Association of Wholesaler-Distributors. In 1972 the Ad Hoc Committee will be making in-store tests of checkstand scanning equipment using various symbol patterns. Selection is to be made in early 1973 after which manufacturers will begin printing the symbol on packaged food products.

The committee requests that companies interested in developing automated checkout technology obtain further information from McKinsey & Company.

Computerized Checkout Systems for Retail Food Stores

Management Information Bulletin
No. 3
Indiana State University
Bureau of Business Research
Terre Haute, Indiana 47809
(812) 232-6311 Ext. 2178

A study made under a cooperative agreement between the U.S. Department of Agriculture and Indiana State University of the cost reduction possibilities using computerized checkout systems. Covers efficiency, accuracy, productivity, management information benefits and customer relations. Published April 1971. Price $1.

The estimated savings were approximately 1.2 to 1.5 percent of sales which is substantially more than the net earnings after taxes of .92 percent reported by food chains for 1969.

Data Universal Numbering System (DUNS)

Dun & Bradstreet, Inc.
Marketing Services Division, 6th Floor
99 Church Street
New York, New York 10007
(212) 349-3300

The DUNS number system consists of 9-digit number for identifying nearly 3,000,000 U.S. commercial business establishments. DUNS numbers are assigned to headquarters, branches, or locations that conduct commercial transactions. The use of this type numerical system facilitates data entry operations, makes for positive identification and as the last number is a special check digit, entry errors are

reduced. The code has many uses in management information and EDP systems.

The Transportation Data Coordinating Committee (TDCC) has made available DUNS as a patron or customer identification code to use with their Standard Point Location Code, and Standard Transportation Commodity Code.

Distribution Number Bank, Inc.

1725 K Street, N. W.
Washington, D. C. 20006
(202) 833-1134

A copy of the Guidelines for Establishing DNB System Product Numbers and applications to receive assignment of a number may be obtained without charge by writing DNB, Inc.

The identification code consists of 11 digits all numerical. The first six digits will be used to identify the manufacturer and the last five the individual products of the manufacturer. If the manufacturer has more than 99,999 products he will be assigned a second manufacturer's code. Using the !1digit code will replace the 30 to 40 characters that would be required to make an EDP entry by a descriptive method.

National Association of Wholesaler-Distributors

1725 K Street, N.W.
Washington, D. C. 20006
(202) 338-8085

NAWD is a federation of 75 national wholesaler-distributor commodity line associations representing over 25,000 wholesaler-distribtuor establishments. It also serves 30 regional associations and has over 1,900 individual firm members.

The NAWD staff continually reviews and analyzes industry-wide government and cross distribution commodity problems, and, works to inform the general public, as well as suppliers and members' customers, of the vital function performed by the wholesaler-distributor. NAWD owns 51 percent of the Distribution Number Bank Inc.

National Retail Merchants Association (NRMA)

Information Systems Division
100 West 31st Street
New York, New York 10001
(212) 244-8780

The NRMA with its Information Systems Division and subtask forces is actively engaged in establishing criteria for manufacture-product and personal identification codes (credit cards) and also equipment specification standards.

The "retail loop," buyer to vender to warehouse to store to purchaser and back to buyer, with its branches to accounts payable-receivable, and credit verification, is ideally suited to automation of its data information portion.

NRMA has many publications and other forms of information available.

Insurance

Insurance operations fall into two major categories: Life and health, and property and casualty. Both areas are widely using EDP for general accounting and administrative function.

Life and Health:

Remote status inquiry of policy holder files is a prime existing application for data communications in the segment. Yet currently, less than 5 percent of all life policies in force are accessible for remote status inquiry.

In the future, insurers will make significantly increased use of data communications for the automated preparation of sales illustrations, on-line status and value inquiries, and for inquiries to a centralized medical data base which contains medical histories of insurance applicants. Premiums and claim transactions will probably be done on a batch basis.

Property and Casualty:

Status inquiry of "personal" type insurance files will continue to be the major on-line applications. In addition, transmission of premium and claim transaction data between field offices and headquarters will be a substantial batch-mode requirement. If widely discussed "no-fault" automobile insurance comes into being, significant pressures will mount on competitive carriers for speedy, efficient claims handling systems.

Best's Review

John C. Burridge, Managing Editor
A. M. Best Company, Publisher
Park Avenue
Morristown, New Jersey 07960
(201) 267-9000

Best's Review—Life/Health Edition. Monthly. $5 per year.

Best's Review—Property/Liability Edition. Monthly. $5 per year. Each month publishes articles on "Methods and Management" which emphsaizes computer technology as it relates to insurance; also actual examples of computer applications and usage are discussed in these articles.

Annually, in conjunction with the annual meeting of the Insurance Accounting and Statistical Association, has a special section with emphasis on ADP and EDP systems and their associated equipment.

Insurance Accounting and Statistical Association (IASA)

1005 West 39th
Kansas City, Missouri 64111
(816) 931-9111

IASA is an association devoted to the study of the research and development of modern theory, practice and procedure as applied to insurance accounting and statistics.

Publication, *The Interpreter*. Monthly. 60 cents per month. Contains articles and papers on accounting and statistics including uses of EDP in these areas.

The Association maintains research files containing proceedings of annual conference papers printed in *The Interpreter* and other sources of information. This information is for members only but certain information may be available to qualified interested parties. This information is in a subject-indexed booklet, 1965-69, with a supplement for 1969-70.

Insurance News

G. E. Claseman, Managing Editor
131 East Sixth Avenue
Scottsdale, Arizona 85281
(602) 946-4258

Monthly. $5 per year. Contains articles on the present and future use of EDP systems in the insurance field. Many of these are written by guest editors who are employed by companies specializing in insurance management.

Life Office Management Association (LOMA)

100 Park Avenue
New York, New York 10017
(212) 725-1300

An association of legal reserve life insurance companies which addresses itself to the management problems of its members. The Systems and Procedures Division covers the use of EDP for the Association.

The proceedings of the LOMA Systems Forum 1971. $12. This collection of papers submitted by personnel of various life insurance companies gives in-depth pictures of present and future use of EDP in their sector. Chapters such as "The Use of Remote Terminals," "EDP Organization Patterns," "Techniques for Data Entry," "Techniques of Equipment Selectors" are a few of the chapter headings.

A booklet describing this and other publications may be obtained from the association. The association maintains a library that interested persons may be granted permission to use.

Health

The health sector is making extended use of data systems. The varied uses fall into the following major areas:

- Medical research libraries.
- Medical and clinical research.
- Patients record maintenance, general administration.
- Clinical monitoring and analysis.

The U.S. Department of Health, Education and Welfare has several activities that are concerned with the use of data systems. Information on them can be obtained from:

Department of Health, Education and Welfare, Public Health Services and Mental Health Administration, 5600 Fishers Lane, Rockville, Md. 20852. Phone (301) 655-4000.

National Center for Health Services Research and Development, *Publications Report N(HSM) 723001*, July 1971. This publications report, the second of a series, describes its publications programs and lists all technical reports and other publications released to the public.

American Hospital Association (AHA)

840 North Lake Shore Drive
Chicago, Illinois 60611
(312) 645-9400

The AHA's Data Processing Division carries on many programs in the use of EDP in the hospital field. For information on publications, seminars, and other activities, write to the Director of Data Processing Division.

Hospitals. Official publication of the AHA. Twice monthly. $10 per year.

American Medical Association (AMA)

535 Dearborn Street
Chicago, Illinois 60610
(312) 527-1500

The AMA's Center for Health Services Research and Development Department is the AMA's section that concerns itself with the use of EDP in medicine. Requests for information on reports and publication should be directed to this department.

Hospital Financial Management Association (HFMA)

Suite 605
840 North Lake Shore Drive
Chicago, Illinois 60611
(312) 787-3876

The HFMA is an association of individuals who are organized to improve financial management of hospitals and allied patient care institutions and to foster and increase knowledge of and proficiency in financial management; to conduct and participate in educational programs and activities concerning financial management; to provide media for the interchange of ideas and dissemination of material relative to financial management.

Each year, HFMA conducts a 5-day accounting and financial management institute, featuring a wide variety of courses and activities for registrants. The courses offered are often sponsored in cooperation with other hospital professional associations.

Among the courses slated for a typical institute are Cost Finding and Rate Setting, Internal Control, Medicare Problems, Budgeting, Systems and Procedures and Automatic Data Processing.

Further information may be obtained by writing Director of Technical Services.

Publication. *Hospital Financial Management Official Journal of the HFMA Monthly*. $10 per year non-members. Contains articles on the use of EDP applications in hospital financial systems. Reprints available as supply lasts.

Medical Electronic News

Josephine N. Martin, Editor
Chilton Company, Publisher
One Decker Square
Bala Cynwyd, Pennsylvania 19004
(215) 748-2000

Semimonthly plus two Directory Issues. $10 per year. Features articles on patient monitoring, clinical, laboratory and medical instrumentation systems and equipment and the use of EDP in this area of the medical profession. Regular departments include: Computer applications, new products, book reviews, and literature.

Medical Electronics & Data Society (MEDS)

1687 Washington Road
Pittsburgh, Pennsylvania 15228
(412) 833-6191

The purpose of the Society is to improve the quality and quantity of both products and services available to all by application of electronic techniques wherever possible. This purpose is to be

achieved by education of all members of the Society through courses, books, seminars, and exhibits relative to this field and dissemination of news of the field to all others.

Publication, *Medical Electronics & Data,* the journal of the Medical Electronics & Data Society. Bi-monthly. $10 per year and includes membership in the society. It contains articles of interest to medical, bio-medical, scientific, engineering and technical personnel in all medical/biomedical areas. Articles describe diagnosis, treatment, therapy, research and associated data handling. Unique features include: Major portion of a technical book; home-study courses; and original articles pertinent to this general field. News reported by variables for easy location of information.

Transportation

Passenger and freight transportation use EDP for different functions. The passenger sector has almost completely computerized its reservation systems. Future emphasis will be on equipment such as concentrators, switching, and other equipment to reduce the communication cost. The airlines are adding hotel and motor inn reservations to the service.

The airlines are studying the feasibility of constructing their own microwave system. This system would carry reservation data as well as flight operation information and regular business data.

Freight transportation has used EDP in a limited way. The Transportation Data Coordinating Committee is establishing patron, commodity and other standardized codes which are necessary as a large amount of freight is shipped inter-line or inter-modal. These codes will also have to interface with other international tariff standards codes.

American Express Reservation, Inc.

770 Broadway
New York, New York 10003
(212) 677-1111

American Express Space Bank is the world's largest computerized hotel-motor inn reservation service. The bank memory contains information on over 500,000 rooms and 4,500 car rental locations in over 50 countries. In 1972, it will interface with BOAC Airlines Space Bank. Travel agents using their system with a terminal at their office can poll the bank for specific space or an alternate and receive hard copy conformation of reservation.

Ticketron Inc.

777 Third Avenue
New York, New York 10017
(212) 644-2900

This is a service for the sale of tickets to entertainment and sporting events through the use of on-line terminals. The event is programmed into the system as a data base and seats are removed from the event as they are sold. Ticketron service is also used for the sale of tickets on the Amtrak Metroliner Railroad System. Pacific Southwest Airlines uses Ticketron for their reservation and ticket sales.

This service is also used for state-run, off-track, betting and lotteries. The Department of Parks of the State of California used Ticketron for reservations and sale of space to its parks and campsites. The sale of reserve tee-off time for golf courses is another usage.

This type of data base, reservation and ticket sale system, is expected to expand to other areas.

Transportation Data Coordinating Committee (TDCC)

1101 17th Street, N. W.
Washington, D. C. 20036
(202) 293-5514

The Transportation Data Coordinating Committee is a non-profit organization, estabilshed by shippers, carriers, and banks for the purpose of achieving the coordination needed to establish common data elements, codes and formats that will enable the transportation industry to convert from paperwork systems to computerized, high-speed transmission systems for information exchange.

The U.S. Department of Transportation is supporting industry in this joint effort to save U.S. shippers and carriers in domestic and international commerce an estimated $1.2 billion annually by developing a uniform intermodel commodity description and code system.

The objectives of TDCC are endorsed by:

Transportation Association of America.
National Industrial Traffic League.

Association of American Railroads.
American Trucking Associations.
Air Transport Industry.
Water Transport Association.
Pipe Line Industry.
Banking and Insurance Interests.
U.S. Department of Transportation.
U.S. Interstate Commerce Commission.
U.S. Civil Aeronautics Board.
U.S. Federal Maritime Commission.
U.S. Maritime Administration.

The committee has six task forces covering various areas: Commodity Task Force; Geographic Task Force, Tariff Task Force, Carrier Task Force, Patron Code Task Force and Advanced Concepts Task Force. The Patron Task Force has made available to members the Data Universal Numbering System (DUNS) for identifying customers and patrons.

Chapter 6

Foreign Production and Trade Statistics

Argentina

Comercio Exterior, exports-imports
Direccion Nacional de Estatistica y Censos
Buenos Aires, Argentina
Cost $8.57.

Austria

Statistik des Aussenhandels Osterreiches, Teil A, exports-imports
Osterreichisches Statistiches Zentralamt
Vienna, Austria
Cost $6 for annual issue.

Belgium-Luxembourg

Bulletin Mensuel du Commerce Extérieur de l'Union Economique Belgo-Luxembourgeoise, exports-imports
L/Institut National de Statistique
44 rue de Louvain
Brussels 1, Belgium
Cost $7.80 for December issue.

Brazil

Estatistica do Comercio Exterior do Brazil, por Mercadoras, Segundo os Parses, exports-imports
Servico de Estatistica Economica e Financeira,
Rio de Janeiro, Brazil
(Cost available from publisher upon request.)

Canada

Trade of Canada, Exports by Commodities, Catalog No. 65-004
Trade of Canada, Imports by Commodities, Catalog No. 65-007
Dominion Bureau of Statistics
Ottawa, Ontario, Canada
Cost monthly 75 cents, annually $7.50.

Denmark

Varestatistik for Industrien, production
Danmarks Statistik
Frederiksholms Kanal 27
1220 Cophenhagen K., Denmark
Cost $2, semi-annually.

Denmarks vareindforsel og-undforsel, exports-imports
Danmarks Statistik
Frederiksholms Kanal 27
1220 Copenhagen K., Denmark
Cost $2 annually.

European Economic Community

Foreign Trade, Analytical Tables, Import and Export,
Statistical Office of the European Communities,
Brussels, Belgium
(Cost available from publisher upon request.)

Finland

Foreign Trade
Statistical Bureau of the Board of Customs
Helsinki, Finland
(Cost available from publisher upon request.)

France

Statistiques du Commerce Exterieur de la France, exports-imports, quarterly
Bulletin Mansuel de Statistique Industrielle, production, monthly
L'Imprimerie Nationale
27 rue de la Convention
Paris (15e), France
(Cost available from publisher upon request.)

Germany

Fachserie D: Industrie und Handwerk Reihe 3—Industrielle Produktion, production, quarterly, cost $2.25.
Verlag W. Kohlhammer G.m.b.H.
Stuttgart, Germany
Fachserie G. Aussenhandel Reihe 2—Spezialhandel nach Waren und Landern, exports-imports, quarterly, cost $3.25.
Verlag W. Kohlhammer G.m.b.H.
Stuttgart, Germany

Greece

Foreign Trade of Greece
National Statistical Service of Greece
Athens, Greece
Cost $3.50.

Hong Kong

Hong Kong Trade Statistics, exports-imports
Government Printer
Java Road, North Point
Hong Kong
Cost $36.30 annually, December issue $2.48.

Iceland

External Trade
Statistical Bureau of Iceland
Reykjavik, Iceland
Cost $3.12.

Italy

Bollettino Mensile di Statistica (ISTAT), production, cost $21 annually.
Statistica Mensile Del Commercio Con L'Estero (ISTAT), exports-imports
Cost $29 annually.

Japan

Japan Exports and Imports
Japan Tariff Association
1-1-4 Uchisaiwai-cho
Chiyoda-ku, Tokyo
Cost $22.25 monthly.

Industrial Statistics Monthly, production
Research & Statistics Division
Ministry of International Trade and Industry
2-chome, Kasumigaseki
Chiyoda-ku, Tokyo
Cost $13.99 annually, $1.70 monthly.

Mexico

Anuario Estadistico del Comercio Exterior de los Estados Unidas Mexicanos, exports-imports
Secretaria de Industria y Comercio
Direccion General de Estadistics
Mexico, D.F., Mexico,
(Cost available from publisher upon request.)

Netherlands

Maandstatistiak van de inuit-an doorvoer par goederensoort, exports-imports
Centraal Bureau voor de Statistick,
Oestduinlaan 2,
's-Gravenhage, Netherlands
Cost $1.96.

Norway

Utenrikshandel, Heft I, II, III, exports-imports
Statistisk Sentralbyra
Oslo, Norway
Cost $1.54.

Industristatistickk, Bedrioftenes Storrelse, Vareproduksjar M.V., production
Norges Officielle Statistik
Oslo, Norway
Cost 85 cents.

Peru

Estadistica del Comercio Exterior, exports-imports
Minesterio de Hacienda y Comercio
Superintendencia General de Aduanas,
Lima, Peru
(Cost available from publisher upon request.)

Portugal

Estatisticas do Comércio Externo (Continente e ilhas adjacentes), exports-imports
Instituto Nacional de Estatistica
Av. Antonio Jose de Almeida
Lisboa 1, Portugal
Quarterly
Cost $6.82.

Spain

Estadistica del Comercio Exterior, exports-imports
Ministerio de Hacienda
Direccion General de Aduanas
Seccion de Estadistica
Guzman el Bueno, 125
Madrid, Spain
Cost $7 annually.

Estadisticas de Produccion Industrial, production
Ediciones y Publicaciones Populares
Huertas, 73
Madrid 14, Spain
Cost $3.50 annually.

Sweden

Industri 1968, production
Statiska Centralbyran
S-10250
Stockholm 27, Sweden
Cost $5.60 annually.

Kvartalsstatistik over Handeln, Parts I & II, exports-imports
Statistiska Centralbyran,
Stockholm 27, Sweden
Quarterly
Cost $8.55.

Switzerland

Statistique Annuelle du Commerce Exterier de la Suisse, exports-imports
Public par la Direction Generale des Douanes
Berne, Switzerland
(Cost available from publisher upon request.)

United Kingdom

Overseas Trade Accounts of the United Kingdom, exports-imports
British Information Services, Sales Department
845 Third Ave.
New York, N.Y.
Monthly cumulative, cost $46 annually.

Monthly Abstract of Statistics, production
British Information Service, Sales Department
845 Third Ave.
New York, N.Y.
Cost $1.02 monthly.

Board of Trade Journal, computer data
British Information Services, Sales Department
845 Third Ave.
New York, N.Y.
Weekly, Cost $17 annually.

Yugoslavia

Statistics of Foreign Trade of the FBR Yugoslavia
Federal Institute for Statistics
Belgrade, Yugoslavia
Cost $4.80.

Chapter 7

Production and Trade Product Codes

Introduction

The following product code lists identify data communication equipment by product codes in official publications. The product codes cover U.S. and foreign production and trade.

It should be noted that a specific data communication piece of equipment may not be traceable by product code throughout, as product codes are not uniform in all publications. Each country's official publications will have to be consulted to determine if a specific type of machine is included. Further, it will be found that machines which have specific identification in the U.S. export phase may be included in a "basket" class when imported into the United States.

While the listings may not provide discrete data for each type of equipment throughout, they will serve, nevertheless, as a useful tool for organizations interested in determining the production and trade of data communication equipment in the United States and abroad.

Radio Communications Equipment

U.S. Production, Years Ending in 2 or 7: U.S. Census of Manufactures, SIC
Radio Communications Equipment

36621	Receivers, radio communications (point-to-point) except amateur, and Citizens Radio, sold separately.
3662125	Microwave line-of-sight; microwave scatter; and microwave video relay, except studio transmitter link. Point-to-point radio communications systems such as Dew Line, White Alice, etc. (except real estate), sold as a complete package (antennae, power supplies, receivers, transmitters, multiplexing and demodulating equipment, etc.).
3662115	Microwave line-of-sight; microwave scatter; and microwave video relay, except studio-transmitter link. Transmitters and RF power amplifiers, radio communications (point-to-point), except amateur and Citizens Radio, sold separately.
3662135	Microwave line-of-sight; microwave scatter; and microwave video relay, except studio television link.
3662143	Associated ground equipment for space satellite communications systems (including telemetering, synchronization, relay, and command and control equipment).
3662147	Carrier current communications systems and equipment, n.e.c.
3662193	Electronic checkout, monitoring, evaluation, and other electronic support equipment for communications systems.
3662198	Other communications equipment, sold separately.
3662194	Microwave, antenna systems above 890 megacycles (horns, parabolas, etc.), exclude structural towers, sold separately.
3662311	Intercommunication equipment, electronically amplified (except intercommunication equipment designed primarily for use in telephone and telegraph networks.)
3662343	Electronic and electro-mechanical controllers, detectors, and sensors; including parts and accessories.
3662347	Alarm systems, electronic.
3662413	Nonmissile and space, vehicle guidance equipment (ground, ship, or airborne command guidance systems, etc.).
3662414	Electronic checkout, launching, and other missile and space vehicle support systems (ground, ship, and air).

3662631	Telemetering equipment.
	Amplifiers, except radio, RF power, and video, sold separately.
3662661	Magnetic.
3662665	Pulse.
3662667	D.C.
3662669	Other (differential, facsimile, etc.).
3662652	Facsimile communications equipment.
3662697	Miscellaneous electronic systems, equipment, and subassemblies, n.e.c.
3662741	Space satellite-borne communications systems (complete packages).
	Magnetic recording media.
3679502	Computer tape.
3679503	Instrumentation tape.

U.S. Exports, Monthly, Cumulative: Bureau Census FT-410, Schedule B
Radio Communications Equipment—Telecommunication equipment

724.9925	Microwave communications systems and equipment.
724.9935	Communication equipment n.e.c.; and parts, n.e.c.
724.9965	Intercommunications equipment, except wire telephone and telegraph.
729.9420	Alarm and signal systems (except traffic-control equipment), electric or electronic.

Foreign Country Exports and Imports, Quarterly: U.N. Commodity Trade Statistics, SITC
Radio Communications Equipment

724.92	Microphones, loudspeakers, amplifiers and telegraph repeaters.
724.99	Other telecommunications equipment.
729.94	Electric sound or visual signaling apparatus, n.e.s.

Foreign Country Exports, Imports, Production, Annual: Various Foreign Publications, BTN
Radio Communication Equipment

85.15c	Other telecommunications equipment.
85.17	Electronic sound or visual signaling equipment.

U.S. Imports, Monthly, Cumulative: Bureau Census FT-246, TSUSA
Radio Communication Equipment
Radiotelegraphic and radiotelephonic transmission or reception apparatus

685.2365	Solid state (tubeless) radio receivers. Other.
685.2520	Transceivers.
685.2540	Radio receivers, other than solid-state (tubeless).
685.2560	Other, including parts.
685.7000	Bells, sirens, indicator panels, burglar and fire alarms, and other sound or visual signaling apparatus, all the foregoing which are electrical, and parts thereof.

Telephone and Telegraph Equipment

U.S. Production, Years Ending in 2 or 7: U.S. Census of Manufactures, SIC

3661	TELEPHONE AND TELEGRAPH APPARATUS.
36611	Telephone switching and switchboard equipment.
3661111	Telephone switchboards (central office and PBX subscriber A and B, trunk and toll).
3661153	Dial automatic telephone switching equipment (central office, PBX, and toll) excluding electronic switching equipment.
3661155	Electronic telephone switching equipment (central office, PBX, and toll).
3661100	Telephone switching and switchboard equipment, n.s.k.
36612	Other telephone and telegraph (wire) apparatus, equipment and components. Telephone carrier equipment and repeater equipmnt (including open-wire and cable transmission).
3661213	Carrier equipment.
3661215	Repeater equipment.
3661261	Other telephone apparatus and equipment, including components. Telegraph (wire) apparatus and equipment and components, including military.
3661273	Teleprinter units.
3661275	Telegraph switching equipment.
3661277	Telegraph carrier systems.
3661279	All other telegraph apparatus, equipment and components, including facsimile.
3661281	Data sets (digital or analog).
3661200	Other telephone and telegraph (wire) apparatus, equipment and components, n.s.k.

U.S. Exports, Monthly, Cumulative: Bureau Census FT-410, Schedule B
Telephone and Telegraph Equipment

724.9110	Telephone switchboards.
724.9120	Telephone switching devices.

724.9130 Telephone carrier equipment; and parts, n.e.c.

724.9140 Telephone instruments.

724.9150 Telephone apparatus and equipment, n.e.c.; and parts, n.e.c.

724.9155 Teleprinter units (wire).

724.9165 Telegraph (wire) apparatus and equipment, n.e.c.

Foreign Country Exports and Imports, Quarterly: U.N. Commodity Trade Statistics, SITC
Telephone and Telegraph

724.91 Electrical line telephone and telegraph equipment.

Foreign Country Exports, Imports, Production, Annual: Various Foreign Publications, BTN
Telephone and Telegraph

85.13 Electrical line telephone and telegraph equipment.

U.S. Imports, Monthly, Cumulative: Bureau Census FT-246, TSUSA
Telephone and Telegraph Equipment
Electric telegraph (including printing and typewriting) and telephone apparatus and instruments and parts thereof

684.6200 Telephonic apparatus and instruments and parts thereof.

684.6420 Teleprinting and teletyping machines.

684.6440 Other telegraph apparatus and instruments and parts.

Electronic Digital or Analog Computers and Peripheral Equipment

U.S. Production, Years Ending in 2 or 7: U.S. Census of Manufactures, SIC Electronic Computing

Digital:

3573111	General purpose.
3573113	All other.

Analog:

3573121	General purpose.
3573123	All other.

Coded (stored) Media Data Processing Machines, other than punched card, sold separately:

3573131	Accounting, bookkeeping, and billing machines, including cash registers, key operated.
3563133	Adding machines.
3573135	Calculating machines.
3573139	Coded (stored) media data processing machines, n.e.c.
3573141	Punched card system machines.
3573198	Other electronic computing equipment, n.e.c., including rebuilt machines.

U.S. Exports, Monthly, Cumulative: Bureau Census FT-410, Schedule B Electronic Computers:

714.2002	Digital electronic computers, main frame and central memory, including industrial process computers.
714.2008	Analog electronic computers, main frame and central memory, including industrial process computers.

714.2012 Hybrid electronic computers, main frame and central memory, including industrial process computers.

714.3020 Computer related machines for preparing tape or punched cards.

714.3040 Statistical machines, n.e.c., used in conjunction with punched cards or punched tape.

714.9170 Office machines, n.e.c.

714.9204 Input, output and combination input-output devices, for electronic computers; and parts, n.e.c.

714.9208 Auxiliary storage devices for electronic computers; and parts, n.e.c.

714.9212 Communication devices for electronic computers; and parts, n.e.c.

714.9216 Parts and accessories, n.e.c., for basic electronic computers.

714.9218 Parts and accessories, n.e.c., for computer related machines and statistical machines, n.e.c., used in conjunction with punched cards or tape.

Foreign Country Exports and Imports, Quarterly: U.N. Commodity Trade Statistics, SITC

714.20 Calculating machines, accounting machines and similar machines incorporating calculating devices.

714.30 Statistical machines, e.g. punched card machines.

714.92 Parts of office machinery, n.e.c.

Foreign Country Exports, Imports, Production, Annual: Various Foreign Publications, BTN

84.52 Calculating machines, accounting machines and similar machines incorporating a calculating device.

84.53 Statistical machines, e.g., punched card machines.

84.55 Parts of office machinery, n.e.s.

U.S. Imports, Monthly, Cumulative: Bureau Census FT-246, TSUSA
Data Processing Machines

676.1500 Accounting, computing and other data processing machines.

676.3030 Office machines not specifically provided for.

LIST OF FIELD OFFICES

ALBUQUERQUE, NEW MEXICO 87101
U.S. Courthouse—Room 316
William E. Dwyer, Director
Area Code 505 Tel. 843-2386
FTS 505-843-2386

ANCHORAGE, ALASKA 99501
412 Hill Building
632 Sixth Avenue
H. Phillip Hubbard, Director
Area Code 907 Tel. 272-6531

ATLANTA, GEORGIA 30309
Suite 523, 1401 Peachtree St., N. E.
David S. Williamson, Director
Area Code 404 Tel. 526-6000
FTS 404-526-6000

BALTIMORE, MARYLAND 21202
415 U.S. Customhouse
Gay and Lombard Streets
Carroll F. Hopkins, Director
Area Code 301 Tel. 962-3560
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BIRMINGHAM, ALABAMA 35205
Suite 200-201
908 South 20th Street
Gayle C. Shelton, Jr., Director
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10th Floor, 441 Stuart Street
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FTS 617-223-2312

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910 Federal Building
111 West Huron Street
Robert F. Magee, Director
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Federal Building, Suite 631
334 Meeting Street
Paul Quattlebaum, Jr., Director
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500 Quarrier Street
J. Raymond DePaulo, Director
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FTS 304-343-1375

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6022 O'Mahoney Federal Center
2120 Capitol Avenue
Joseph D. Davis, Director
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FTS 307-778-2151

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Room 1486, New Federal Building
219 South Dearborn Street
Gerald M. Marks, Director
Area Code 312 Tel. 353-4400
FTS 312-353-4450

CINCINNATI, OHIO 45202
8028 Federal Office Building
550 Main Street
Thomas E. Ferguson, Director
Area Code 513 Tel. 684-2944
FTS 513-684-2944

CLEVELAND, OHIO 44114
Room 600, 666 Euclid Avenue
Charles B. Stebbins, Director
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FTS 216-522-4750

DALLAS, TEXAS 75202
Room 3E7, 1100 Commerce Street
C. Carmon Stiles, Director
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FTS 214-749-3287

DENVER, COLORADO 80202
Room 161, New Customhouse
19th and Stout Streets
John G. McMurtry, Director
Area Code 303 Tel. 837-3246
FTS 303-837-3246

DES MOINES, IOWA 50309
609 Federal Building
210 Walnut Street
Robert E. Case, Director
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445 Federal Building
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FTS 313-226-6063

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Joel B. New, Director
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11201 Federal Building
11000 Wilshire Blvd.
Stanley K. Crook, Director
Area Code 213 Tel. 824-7591
FTS 213-824-7591

MEMPHIS, TENNESSEE 38103
Room 710, 147 Jefferson Avenue
Bradford H. Rice, Director
Area Code 901 Tel. 534-3214
FTS 901-534-3214

MIAMI, FLORIDA 33130
Room 821, City National Bank Building
25 West Flagler Street
Roger J. LaRoche, Director
Area Code 305 Tel. 350-5267
FTS 305-350-5267

MILWAUKEE, WISCONSIN 53203
Straus Building
238 West Wisconsin Avenue
David F. Howe, Director
Area Code 414 Tel. 224-3473
FTS 414-224-3473

MINNEAPOLIS, MINNESOTA 55401
306 Federal Building
110 South Fourth Street
Glenn A. Matson, Director
Area Code 612 Tel. 725-2133
FTS 612-725-2133

NEW ORLEANS, LOUISIANA 70130
909 Federal Office Building, South
610 South Street
Edwin A. Leland, Jr., Director
Area Code 504 Tel. 527-6546
FTS 504-527-6546

NEW YORK, NEW YORK 10007
41st Floor, Federal Office Building
26 Federal Plaza, Foley Square
Arthur C. Rutzen, Director
Area Code 212 Tel. 264-0634
FTS 212-264-0600

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1015 Chestnut Street
Patrick P. McCabe, Acting Director
Area Code 215 Tel. 597-2850
FTS 215-597-2850

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508 Greater Arizona Savings Bldg.
112 North Central
Donald W. Fry, Director
Area Code 602 Tel. 261-3285
FTS 602-261-3285

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300 Booth Street
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RICHMOND, VIRGINIA 23240
2105 Federal Building
400 North 8th Street
Weldon W. Tuck, Director
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FTS 703-782-2246

ST. LOUIS, MISSOURI 63103
2511 Federal Building
1520 Market Street
Donald R. Loso, Director
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